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Tongass Land Management Plan Revision

Revised Supplement to the Draft Environmental Impact Statement

Proposed Revised Forest Plan

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TONGASS LAND MANAGEMENT PLAN REVISION

REVISED SUPPLEMENT

PROPOSED REVISED FOREST PLAN

MARCH 1996

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TONGASS LAND MANAGEMENT PLAN REVISION

PROPOSED REVISED FOREST PLAN

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Chapter 1

Introduction

CHAPTER 1 - INTRODUCTION

PURPOSE

The Forest Plan guides all natural resource management activities and establishes management standards and guidelines for the Tongass National Forest. It describes resource management practices, levels of resource production and management, and the availability and suitability of lands for different kinds of resource management.

The Forest Plan embodies the provisions of the National Forest Management Act, the implementing regulations, and other guiding documents. The multiple-use goals and objectives, and the land use prescriptions and standards and guidelines, constitute a statement of the Forest Plan's management direction. However, the projected outputs and rates of implementation are dependent on the annual budget process.

This Proposed Revised Forest Plan is a revision of the previous Tongass Land Management Plan, which was approved in 1979 and amended in 1986 and 1991.

RELATIONSHIP TO OTHER DOCUMENTS

This Forest Plan sets forth in detail the proposed direction for managing the land and resources of the Tongass National Forest. The Proposed Revised Forest Plan is a result of extensive analysis, which is addressed in the accompanying Revised Supplement to the Draft Environmental Impact Statement (Revised Supplement). The Revised Supplement discusses the planning process and the analysis procedures used to develop the Forest Plan, describes and analyzes the alternatives considered in detail, and discusses how the public issues identified during the process helped shape these alternatives. Public issues were an integral part of developing the Proposed Revised Forest Plan.

Specific activities and projects will be planned and implemented to carry out the direction in this Forest Plan. Schedules of activities and projects will be included in the Final Plan. These are dynamic and can be expected to be updated frequently. The Forest will perform environmental analyses on these projects and activities. This subsequent environmental analysis will use the data and analysis in the Forest Plan and environmental impact statement as its basis. Environmental analysis of projects will be tiered to the Forest Plan EIS.

All future projects, activities, and plans must be consistent with the Forest Plan (or the Plan amended - see Chapter 5). Most existing resource management plans for the Tongass National Forest are already a part of, and consistent with, this revised Forest Plan. Several Wilderness Plans were

developed since the 1979 Forest Plan. Direction in the existing approved Wilderness plans which is consistent with this Plan is incorporated as part of this revised Plan. Prior approved plans include Stikine-LeConte, Admiralty (Kootznoowoo), South Baranof, Endicott River, and Tracy Arm-Fords Terror Wildernesses. Further direction for Wilderness management is contained in the Regional Supplement to Forest Service Manual 2320. Off-highway vehicle (OHV) plans are developed on an as-needed basis. The Forest is designated open to OHV's unless site-specific closures are made. The Off-Road Vehicle Management Plan for the Juneau Area (Juneau Ranger District, November 1985) is incorporated here by reference.

The Tongass Timber Reform Act (November 28, 1990) was enacted between release of the Forest Plan Revision DEIS (June, 1990) and its subsequent Supplement (September, 1991). This Act added requirements and direction applicable to the Tongass National Forest. The incorporation of the requirements of the Act into the Forest Plan is discussed in Chapter 5 of this document, as well as in the Revised Supplement.

PLAN ORGANIZATION

What is Forest Planning? Let's compare it to something that is familiar: land use zoning for a community. In a community, certain areas are zoned for commercial uses (stores), industrial uses (factories), and residential areas (where homes may be built). Each of these "zones" has certain uses that may occur there, and others that may not. Many different uses may apply to the same zone. Some zoning requirements may apply only to specific areas of a zone.

In Forest Planning, we call the zoning process "*allocation or land allocation*." Certain areas of the Forest (*land use designations*) are zoned (*allocated*) for different uses. The description of the uses to which the land may be put and the activities which may occur there is called a *management prescription*. Each management prescription gives general direction on what may occur within the area covered by the corresponding land use designation, the standards for accomplishing each activity, and the guidelines on how to go about accomplishing the standards. These are called the "*Land Use Designation Standards and Guidelines*." Some of these standards and guidelines may be common to many areas of the Forest. These are called *Forest-wide Standards and Guidelines*.

(Note: The term "land use designation" is used throughout the document instead of "management area" as used in the 1990 DEIS. This is because the Tongass Timber Reform Act refers specifically to the management areas of the 1979 Forest Plan. These management areas, 141 in all, are considerably different than the ones in the 1990 DEIS, and the term "land use designation" is used to avoid confusion. The 1979 Forest Plan management areas are used to address the timber harvest "proportionality" requirement of the Act,

as discussed in Chapter 5; their boundaries, which remain the same, are displayed on the March 1991 "Tongass National Forest Land Management Plan" map, part of the most recent amendment of the 1979 Forest Plan.)

Standards and guidelines are designed so that all activities are integrated to meet land allocation objectives. Standards and guidelines represent minimum achievement levels, but do not limit achievements: higher objectives may always be attained. For instance, if a land use prescription allows activities to visually dominate the landscape (*Visual Quality Objective: Modification*), then visual quality which is not dominating is always acceptable (*Visual Quality Objectives: Retention through Partial Retention*). Standards and guidelines are also intended to be used in conjunction with National and Regional policies, standards and guidelines contained in Forest Service manuals and handbooks, and the Alaska Regional Guide; they have been designed to be compatible with this other direction.

The location of land use designation boundaries (as indicated on the alternative maps in the map packet) is approximate due to the map scale used, and the programmatic nature of the allocations. Some boundary adjustments may be necessary as specific projects are implemented under the Forest Plan. These adjustments will normally be made through Forest Plan amendments.

The Forest Plan is organized into several chapters. Along with this introduction, Chapter 1 explains the components of Forest Plan management direction, and the priority amongst this direction, gives a brief description of the Tongass, and summarizes the current management situation. Chapters 2, 3 and 4 present the major components of management direction for the Forest. These are described below.

Chapter 5 discusses the Forest Plan implementation process, and includes the implementation requirements of the Tongass Timber Reform Act. The concept of adaptive management, and the process used to amend or revise a Forest Plan, are also discussed. Chapter 6 is the monitoring and evaluation plan. Chapter 7 is a glossary.

Several appendices are also included, including the timber suitability determination (Appendix A) and a discussion of research and information needs (Appendix B).

A discussion of how the Forest Plan revision process addressed the public issues, and the management concerns ("need for change"), is included in Chapter 2 of the Revised Supplement. This chapter also includes a comparison of the alternatives which focuses on the public issues.

FOREST PLAN MANAGEMENT DIRECTION

Chapters 2, 3 and 4 of the Forest Plan present the major components of direction for managing the Tongass National Forest. The management direction of this Proposed Revised Forest Plan conforms with applicable laws, regulations, policies, and the Alaska Regional Guide. The Monitoring and Evaluation Plan (Chapter 6), and the determination of Timber Resource Land Suitability (Appendix A), also provide important direction.

The primary management direction for the Forest consists of the following integrated components:

Forest Multiple-Use Goals (Chapter 2) - The multiple-use and other goals established during the planning process to aid in Forest Plan development and to guide Forest management.

Forest Management Objectives (Chapter 2) - These include narrative objectives for specific resources, the acreages assigned to each land use designation, and the levels of goods and services (resource outputs) that are anticipated during the first decade of Forest Plan implementation.

Management Prescriptions (Chapter 3) - Each land use designation has a management prescription. Each prescription includes goals, objectives, and a desired future condition, and management practices, standards, and guidelines by resource. The geographic areas allocated to each land use designation for the Forest Plan are displayed on the Forest Plan map.

Forest-wide Standards and Guidelines (Chapter 4) - These are the standards and guidelines that apply to all, or most, areas of the Forest. Each management prescription includes a list of those that apply to that land use designation.

Together, these components of Forest direction, along with the land use designation map, establish a management framework that governs the location, design, and scheduling of all Forest management activities and, within the framework of which, area and project-level planning is undertaken to achieve Forest Plan implementation.

Priority of Direction

Every effort has been made to achieve conformity between the components of management direction just described, and between Forest Plan direction and higher-level direction contained in law and regulation, the Forest Service manual and handbook, and the Alaska Regional Guide. However, with the multiplicity of direction in existence pertaining to National Forest management, conflicting or contradictory direction is still possible. If a conflict or discrepancy

between direction should occur, the following priority among direction will apply:

1. Higher-level direction (as described above) always takes precedence over any conflicting Forest Plan direction.
2. Within the components of Forest Plan management direction, the management prescription standards and guidelines for each land use designation take precedence over the Forest-wide Standards and Guidelines applied to that same designation, should any conflicts occur. Any summaries of these standards and guidelines (such as in "At-a-Glance" or in the map legends) are not considered direction.
3. For all projects and activities considered, the standards and guidelines for each management prescription will be used, regardless of the levels of outputs or numbers of projects achieved, and regardless of actual budget allocations. Standards, which can usually be identified by words such as "must" or "will," are mandatory requirements or minimums which must be met. Project-level analysis may determine that additional requirements beyond these minimum are necessary. Guidelines, the majority of the direction, are not absolute requirements, but ways of achieving the standards or meeting other needs of the resource.
4. One purpose of monitoring and evaluation (see Chapter 6) is to assure that management direction is being carried out, and that the outputs and schedules are being achieved. If monitoring shows continued conflicts or problems in implementing the management direction, then a Forest Plan amendment may be necessary.

FOREST LOCATION AND DESCRIPTION

The 17-million acre Tongass National Forest is located in Southeast Alaska, a part of the Alexander Archipelago, and occupies about seven percent of the State's area. The Tongass extends from Dixon Entrance in the south to Yakutat in the North, and is bordered on the east by Canada and on the west by the Gulf of Alaska. It extends approximately 500 miles north to south, and approximately 120 miles east to west at its widest point. Figure 1-1 is a vicinity map of the Tongass.

The Tongass includes a narrow mainland strip of steep, rugged mountains and icefields, and over 1,000 offshore islands. Together, the islands and mainland equal nearly 11,000 miles of meandering shoreline, with numerous bays and coves. A system of seaways separates the many islands and provides a protected waterway called the Inside Passage. Federal lands comprise about 95 percent of Southeast Alaska, with about 80 percent in the Tongass National Forest (and most of the rest in Glacier Bay National Park and Preserve).

The remaining land is held in State, Native and local community private ownerships.

Most of the area of the Tongass is wild and undeveloped. About 65,000 people inhabit Southeast Alaska, most living in 33 communities located on island or mainland coasts. Only eight of the communities have populations greater than 1,000 persons. Most of these communities are surrounded by, or adjacent to, National Forest land. Just three towns are connected to other parts of the mainland by road: Haines and Skagway to the north, and Hyder to the south.

The economies of Southeast Alaska's communities are largely dependent on the Tongass National Forest to provide natural resources for uses such as fishing, timber harvesting, recreation, tourism, mining and subsistence. Maintaining the abundant natural resources of the Forest while also providing opportunities for their use is a major concern of Southeast Alaska residents.

Because of its immense size, the Tongass National Forest is divided into three Administrative Areas, each with its own Forest Supervisor: the Chatham Area with its Supervisor's Office at Sitka, the Stikine Area with its Supervisor's Office at Petersburg, and the Ketchikan Area with its Supervisor's Office in Ketchikan. There are nine Ranger Districts, with offices in Yakutat, Juneau, Hoonah, Sitka, Petersburg, Wrangell, Thorne Bay, Craig, and Ketchikan. There are also two National Monuments, Admiralty Island and Misty Fiords, with offices in Juneau and Ketchikan.

SUMMARY OF THE "AMS"

The supply and demand situation for major resources of the Forest was evaluated during the "analysis of the management situation" (AMS) in 1988 and 1989, reevaluated after passage of the Tongass Timber Reform Act (TTRA) (November 1990), and reevaluated again for the Revised Supplement. The maximum potentials for supplying selected major resources, the actual supplies available under the previous (1979, as amended) Forest Plan, and the anticipated demands for these resources, were determined. These resources are timber (first-decade timber harvest), fish (anadromous fish), recreation, wildlife (old-growth habitat), and wilderness (potential from existing unroaded areas). Chapter 3 of the Revised Supplement presents an in-depth evaluation of supply and demand for these and other resources, and also discusses opportunities for the use and development of resources. Following is a brief summary.

FIGURE 1-1
TONGASS NATIONAL FOREST VICINITY MAP



Supply

Resource potential (supply) is a general indication of how much of a particular resource might be available. The maximum resource supply potentials, subject only to meeting resource protection requirements, were determined for each resource separately (since they could not all be achieved simultaneously). After TTRA, these were:

- a. A maximum first-decade average annual timber harvest level of as high as 704 million board feet.
- b. A commercial fish habitat capability increased to about 115 million pounds per year during the first decade.
- c. A recreation capacity (including tourism) of about 4.9 million recreation visitor days annually.
- d. A maximum of 8.7 million acres of old-growth forest wildlife habitat retained after the first decade.
- e. A maximum of 9.45 million acres of unroaded lands that could be designated as wilderness.

The production potentials for these same resources under the previous plan (after TTRA) were:

- a. A maximum average annual timber harvest level of 450 million board feet.
- b. A commercial fish habitat capability of about 115 million pounds per year.
- c. A recreation capacity (including tourism) of 4.9 million recreation visitor days annually.
- d. A maximum old-growth forest wildlife habitat that could be retained after the first decade of 8.7 million acres.
- e. A maximum of 9.45 million acres of unroaded lands that could be designated as wilderness.

Demand

The projections of resource demand give an indication of how much of a resource might be needed or desired. A few key points are summarized here.

- a. *Fish* - The demand for commercial fish (about 95 percent of total demand) is expected to generally exceed current potentials for all species.
- b. *Recreation* - Recreation use, including tourism, is predicted to increase over the next decade, but will remain well below the Forest's current capacity of 4.9 million recreation visitor days.

- c. *Wildlife* - Hunting demand for old-growth-related game species is expected to increase over the next decade.
- d. *Timber* - Market demand is expected to remain strong over the next decade, with the share of National Forest timber expected to be at least two-thirds of the total harvest in Southeast Alaska.
- e. *Wilderness* - Additional Wilderness for the Tongass was considered during debate on the Tongass Timber Reform Act, which added 0.3 million acres of Wilderness to the Tongass (for a total of 5.8 million acres). No additional Wilderness needs are anticipated for the next decade.

Use and Development Opportunities

- a. *Fish* - Opportunities to increase anadromous fish production through habitat improvement (both rehabilitation and enhancement) exist throughout the Forest.
- b. *Recreation* - Opportunities to increase roaded recreation and tourism use, and access to both developed and dispersed recreation areas, exist primarily in areas with suitable and available timber lands. Opportunities to provide for unroaded recreation and tourism through non-timber designations exist in the 9.45 million acres of unroaded lands outside Wilderness. Opportunities to increase semi-primitive motorized uses are limited. There are many opportunities for developing new recreation facilities or improving existing ones.
- c. *Wildlife* - Opportunities to improve wildlife habitat associated with old-growth forests are limited to the management of second-growth timber to achieve old-growth characteristics. Opportunities to maintain existing old-growth habitat exist on approximately 8.7 million acres.
- d. *Timber* - Opportunities for the management of the timber resource for wood production are limited to the 2.32 million acres of suitable and available timber lands outside Wilderness or other legislated areas. Opportunities to increase wood production on these lands through thinnings or related practices are limited, since nearly all the suitable forest land is currently in an old-growth condition. Future production is likely to increase where second-growth is managed for rotational harvests.
- e. *Wilderness* - Additional Wilderness for the Tongass could be designated from the 9.45 million acres of currently unroaded land outside Wilderness.

Chapter 2

Goals and Objectives

CHAPTER 2 - GOALS AND OBJECTIVES

GOALS AND OBJECTIVES

The multiple-use goals and management objectives of each alternative are detailed in Chapter 2 of the Revised Supplement. The goals and objectives of this Proposed Revised Forest Plan are those of the alternative identified as the Preferred Alternative in the cover letter. As discussed in Chapter 1, these goals and objectives, along with the management prescriptions and Forest-wide standards and guidelines described in Chapters 3 and 4, constitute the full set of management direction of the Proposed Revised Forest Plan.

Implementation schedules for achieving goals or objectives of several resources will be included in the Final Plan. Similar schedules were a part of the 1991 Proposed Revised Forest Plan; these indicate the general program levels likely for the different resources included. Preliminary estimated timber sale schedules for the Forest Plan alternatives are included in the Timber section of Revised Supplement Chapter 3.

Chapter 3

Management Prescriptions

Chapter 3 - Management Prescriptions

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CHAPTER 3 - MANAGEMENT PRESCRIPTIONS

INTRODUCTION

Chapters 2, 3 and 4 of the Proposed Revised Forest Plan present the direction for managing the Tongass National Forest. The components of this direction are explained in Chapter 1. This chapter (Chapter 3) includes the complete management prescription for each of the 19 land use designations used for the Forest Plan. The areas to which each land use designation is applied are shown on the alternative maps in the map packet. The Preferred Alternative, which has the land use designation allocations for the Proposed Revised Forest Plan, is identified in the cover letter.

To use this management prescription section, first find the area of the Forest you are interested in on the map. The map legend for the alternative identified as the Preferred Alternative has the name and corresponding color of each land use designation. Then locate the management prescription for that designation (they have the same name) in the table of contents.

Each management prescription has the following components:

1. Goals, objectives and desired future condition.
2. A brief resource-by-resource overview called "At-a-Glance."
3. A table which refers, by resource, to the *Forest-wide Standards & Guidelines* that apply. The Forest-wide Standards & Guidelines are included in Chapter 4. The order of the resources is shown in the table of contents.
4. The specific direction, called *Land Use Designation Standards & Guidelines*. The Land Use Designation Standards & Guidelines are grouped by resource, following the order established for the Forest-wide Standards & Guidelines. Resource codes are the same for both sets of standards and guidelines.

WILDERNESS

Land Use Designation WW

Goals

To manage all designated Wilderness to maintain an enduring wilderness resource while providing for public access and uses consistent with the Wilderness Act of 1964 and the Alaska National Interest Lands Conservation Act of 1980 (ANILCA).

To protect and perpetuate natural biophysical and ecological conditions and processes.

To provide a high degree of remoteness from the sights and sounds of humans, and opportunities for solitude, primitive recreation, and tourism activities consistent with wilderness preservation.

Objectives

Complete wilderness implementation schedules for each designated Wilderness by applying the standards and guidelines of this LUD to each individual area and situation.

Manage recreation and tourism use and activities to meet the appropriate levels of social encounters, on-site developments, methods of access, and visitor impacts indicated for the established recreation opportunity spectrum.

Provide for public use of the Wilderness in accordance with ANILCA provisions for motorized and non-motorized access and travel, including reasonable traditional subsistence use by rural residents.

Provide trails and primitive facilities that are in harmony with the natural environment and that promote primitive and semi-primitive recreation and tourism experiences.

Desired Future Condition

All designated Wilderness on the Tongass National Forest is characterized by extensive, unmodified natural environments. Ecological processes and natural conditions are not measurably affected by past or current human uses or activities. Users have the opportunity to experience independence, closeness to nature, solitude and remoteness, and may pursue activities requiring self-reliance, challenge and risk. Motorized and mechanized use is infrequent and limited to the minimum needed for the administration of the wilderness, access to state and private lands, subsistence uses, and for public access and other uses specifically described by ANILCA.

At-a-Glance . . .

Facilities

Structures consist of those needed for the administration and protection of Wilderness resources and those needed for the health and safety of visitors and for fish enhancement and other activities specifically allowed by ANILCA. No new permanent administrative facilities are constructed.

Fire

All wildfires are suppressed using a suppression action that minimizes fire suppression costs and resource damage. Prescribed natural fire, to perpetuate natural ecological processes, is not presently used because there is not a

fire history of natural ignitions on the Tongass, but may be considered in the future.

Fish	Fish habitat improvement projects to meet the objectives of the Regional Comprehensive Salmon Plan are designed and maintained in a manner that maintains wilderness values.
Forest Health	Natural occurrences of insects and diseases are allowed to play their normal role in the ecological succession. Scientific study of natural populations is encouraged using research methods appropriate for the wilderness setting and goals.
Heritage Resources	Scientific study of heritage resources may take place and interpretation is provided to visitors in a manner consistent with other Wilderness objectives.
Land Uses	Structures and land uses consist of those authorized by ANILCA, including those permitted for subsistence uses, temporary facilities for the taking of fish and wildlife, existing air and water navigation aids, communication sites, weather, climate and fisheries research and monitoring sites, and those needed for specially authorized activities.
Minerals	Mineral activity is limited to claims on which valid existing rights have been established. The designated Wilderness is withdrawn from mineral entry subject to valid existing rights.
Recreation/Tourism	A choice of primitive and semi-primitive recreation opportunities and experiences is provided through the application of the ROS setting criteria. These settings include appropriate degrees of solitude, risk, and challenge associated with remote wildland environments. Motorized use is infrequent and associated with access to the Wilderness, public use cabins, and subsistence use within the Wilderness Land Use Designation.
Scenery	Activities are designed to not be visually evident to the casual observer meeting the Retention VQO. Permitted structures blend with the natural landscape.
Soil and Water	Watersheds are managed in a natural condition.
Subsistence	Subsistence activities occur in accordance with Federal and state regulations and may be seasonally prevalent in some areas.
Transportation	Travel is primarily by trails or waterways and is essentially non-motorized except for the use of fixed-wing airplanes, motorboats, and snowmachines. Access is provided for as specified in ANILCA Sections 811, 1010, 1110, 1111, 1310, 1315(b) and 1323.
Timber	Activities are limited to subsistence use and coastline beach log recovery, administrative use necessary for management and protection of wilderness values, and other uses specified in ANILCA. Taking of personal use wood is limited to coastline beach logs which can be removed without roads or use of vehicles on uplands. The removal or salvage of trees in navigable rivers is not allowed, except for navigation hazards on the Stikine River International Waterway.

Wilderness

Manage all designated Wilderness to maintain an enduring wilderness resource while providing for public access and uses consistent with the purposes of the Wilderness Act of 1964 and the Alaska National Interest Lands Conservation Act of 1980 (ANILCA).

Wildlife

Scientific study of indigenous species and their habitats is encouraged with emphasis on identifying their roles in ecosystem dynamics and on impacts of human uses.

Apply the following Forest-wide Standards and Guidelines located in Chapter 4:

RESOURCE	SECTION	SUB-SECTIONS	PAGE
AIR	AIR	All	4-2
BEACH AND ESTUARY FRINGE	BEACH	None	4-3
BIODIVERSITY	BIO	I(A:1-5;12-14)	4-7
FACILITIES	FAC1,FAC21,FAC22 FAC23	All All	4-9
FIRE	FIRE12	All	4-10
FISH	FISH	All	4-12
FOREST HEALTH	HEALTH1	I(B:1;C)	4-18
HERITAGE RESOURCES	HER	All	4-19
KARST AND CAVE RESOURCES	KARST CAVE	I-III All	4-23
LANDS	LAND	All	4-26
LAW ENFORCEMENT	LAW	All	4-39
MINERALS AND GEOLOGY	MG11 MG12	All I,III,IV,VI,VII	4-40
RECREATION AND TOURISM	REC111 REC112 REC122	All I,II(A),III I,II,III(B),V-VII	4-42
RIPARIAN	RIP1 RIP2 RIP3	All All I,II(A-E)	4-61
RURAL DEVELOPMENT	RUR	All	4-80
SCENERY	VIS1 VIS11 VIS12	All I(A) I(B,D),II,III	4-81
SOIL AND WATER	S&W1111,112,2 S&W112	All I	4-89
SUBSISTENCE	SUB	All	4-93
THREATENED, ENDANGERED, SENSITIVE	TE&S	All	4-95
TIMBER	TIM111-1 TIM114	All VIII(D)	4-101
TRAIL	TRAI1 TRAI2	I(A-E;F:1,3,5,6) All	4-112
TRANSPORTATION	TRAN	None	4-115
WETLANDS	WET	All	4-123
WILDLIFE	WILD112 WILD22 WILD23	I-III;V;VI(A,B,D);VII,VIII; IX(A:1-7;10);X,XI(A:1-3);XII; XIII; XIV I(A:1,B) All	4-124

Apply the following Land Use Designation Standards & Guidelines:

FACILITIES

Administrative Facilities: FAC2

- A. Construct no new permanent administrative facilities in Wilderness, except as consistent with ANILCA, Sections 1303, 1306, 1310, and 1315.
- B. Allow the continued operation and maintenance of permanent administrative facilities for which there is an ongoing need (ANILCA Section 1306 (b)).
 - 1. When reconstruction of existing permanent administrative structures is necessary, reconstruct or replace them with structures of compatible design.
 - 2. During reconstruction and maintenance activities:
 - * Paint or stain structure to blend with the environment.
 - * Keep clearing of vegetation to the site to the minimum feasible.
 - * Select materials that are natural in appearance.
- C. Allow temporary facilities and crew barges for administration seasonally.
 - 1. Temporary administrative camps used by wilderness rangers, trail crews, or for other administrative activities should avoid areas used for camping by the general public and should be screened from view.
 - 2. Temporary administrative camps may remain in place only during periods required for the administrative activity. All equipment and materials will be removed or collapsed and laid flat at the end of the field season or during other extended periods of non-use.
 - 3. Temporary camps will seek to achieve minimum impact on the land. There will be no permanent foundations or anchors, and only minimal clearing of vegetation at campsites.
 - 4. Crew barges should be located in unobtrusive locations. They may be periodically moved and relocated to support administrative needs.
- D. Administrative use of public cabins and shelters in wilderness is allowed, but should be scheduled to avoid conflict with public use.
- E. Radio repeaters may be located in Wilderness when necessary to provide essential communications for the health and safety of people involved in the administration of the area. Radio repeaters currently located in Wilderness will be allowed to remain.

FIRE

Fire Suppression: FIRE12

Suppression Action

- A. All wildfires will be suppressed using the suppression option identified in the Southeast Alaska/Prince William Sound Fire Management Plan. An Escaped Fire Situation Analysis (EFSA) of expected fire behavior, time of year, and locations with respect to private land and adjacent land use areas, may lead to a lower strategy. If an EFSA discloses no adverse effects and it is more cost-efficient, the lower strategy will be used.
- B. Suppression tactics will emphasize the least possible disturbance or evidence of human presence.

1. Use of mechanized equipment requires Forest Supervisor approval except that the Regional Forester shall approve use of tractors.
2. Suppression tactics will avoid human/bear conflicts and existing policy will be emphasized to leave no trash or any other kinds of bear attractants in the area.
3. Rehabilitation of all campsites, suppression lines, and other evidence of human presence will occur as soon as it is safe, but within one year after the fire occurs.

Fuel Improvements: FIRE2

Prescribed fire

- A. As a general management practice, management-ignited prescribed fire will not be used in this Land Use Designation. Should it become necessary to consider the use of management-ignited prescribed fire, FSM 2324 provides direction.
- B. As a general management practice, prescribed natural fire will not be used in this Land Use Designation because there is not a history of natural ignitions in Tongass Wildernesses. Should it become necessary to consider the use of prescribed natural fire, the Forest Plan must be amended to analyze, justify, and approve prescribed natural fire programs. (Consult FSM 5142.)

FISH

Fish Habitat Planning: FISH112

Planning

- A. Plan for fisheries in Wilderness consistent with ANILCA Section 1315(b) which recognizes the goal of restoring and maintaining fish production in the State of Alaska to optimum sustained yield levels and in a manner which adequately assures protection, preservation, enhancement, and rehabilitation of the wilderness resource. Subject to reasonable regulations, permanent improvements and facilities such as fishways, fish weirs, fish ladders, fish hatcheries, spawning channels, stream clearance, egg planting, and other accepted means of maintaining, enhancing, and rehabilitating fish stocks may be permitted. For this purpose, optimum sustained yield levels will be considered synonymous with the long-term harvest goals documented in the State of Alaska Comprehensive Salmon Plans and other state fisheries plans. Consult R-10 supplements to FSM 2632 and FSM 2320 for further details.
- B. Evaluate fish habitat improvement during project planning by considering: 1) availability of suitable non-wilderness opportunities which should be used first; 2) effects on wilderness conditions, in general; 3) effects resulting from the introduction of species not indigenous to the watershed; 4) the appropriateness of structures both in type and scale to the Recreation Opportunity Spectrum Class (ROS) setting; and 5) the need to provide well-distributed fisheries that support sport and commercial fisheries, subsistence, and community stability.
- C. The need for wilderness aquaculture projects (as described in ANILCA Section 1315(b)) must be determined on a broad basis that includes the potential of private, state, and Federal nonwilderness projects.
- D. In planning, stress protection of fish habitat to prevent the need for mitigation.

Fish Habitat Improvement: FISH22

- A. Facilities shall be constructed in a rustic manner to blend into the natural character of the area and shall be limited to those essential to the project (ANILCA 1315(b)).
- B. Reasonable access, including the temporary use of motorized equipment, shall be permitted subject to reasonable regulation to maintain wilderness character, water quality, and fish and wildlife values of the area.

FOREST HEALTH

Forest Health Management: HEALTH1

- A. Natural occurrences are allowed to play their normal role in ecological succession.

Forest Insect and Disease Survey and Inventory: HEALTH2

- A. Survey and inventory visible outbreaks.

HERITAGE

Heritage Resource Activities: HER

Enhancement

- A. Heritage resources are available for scientific study to the extent that the study is consistent with: 1) the preservation of Wilderness; 2) the intent of the Wilderness Act; and, 3) heritage resource management objectives.
- B. Heritage resources are available for recreational, scenic, scientific, educational, conservation, and historic uses, consistent with management of Wilderness.
 - 1. Provide interpretive information concerning heritage resources to users in the form of exhibits and publications outside of the wilderness.

Evaluation

- A. Develop priorities and schedule management activities to implement heritage resource inventory, evaluation, and protection within the Wilderness.
 - 1. Identify heritage properties to be nominated to the National Register of Historic Places.
 - 2. Identify, classify, and evaluate known heritage resources.
 - 3. Identify heritage properties that require stabilization or other protective measures.

KARST AND CAVES

Cave Management Program: CAVE

- A. Identify opportunities for interpretation of caves for public education and enjoyment. Interpretation will generally occur outside this LUD.
- B. Manage caves as Class 1 (Sensitive) or Class 3 (Undeveloped) as described in the Karst and Cave Resources Forest-wide Standards and Guidelines.

LANDS

Special Use Administration (non-recreation): LAND122

- A. Authorize only activities which are consistent with the Wilderness Act or specifically allowed by ANILCA and are otherwise in compliance with management direction of this plan. (Consult FSM 2700, FSM 2320, and Regional Supplements.)

1. Analyze proposals on a case-by-case basis.
 2. Permit only activities which will not adversely affect the purposes for which the Wilderness was established.
 3. Integrate special use management with the ROS so that approved uses and activities conform to adopted ROS criteria.
 4. Avoid authorizing uses that are not dependent upon Wilderness resources or uses for which reasonable alternative locations exist outside the Wilderness.
- B. New special use cabins and related structures may be permitted by the Regional Forester in accordance with Section 1303(b)(1) of ANILCA under the following conditions:
1. The permit is nontransferable and limited to a 5-year term.
 2. The determination is made that the proposed use, construction, and maintenance of the structure(s) are compatible with the purpose for which the Wilderness was established.
 3. The determination is made that the proposed cabin is either directly related to the administration of the Wilderness or the continuation of an ongoing use otherwise allowed in the Wilderness, where a) the applicant has no reasonable alternative site for constructing a cabin; and b) that the cabin is not to be used for private recreational use.
 4. The United States shall retain ownership of the cabin and related structures.
 5. Applicants must:
 - * Agree to vacate the structure(s) and remove all personal property upon nonrenewal or revocation of the permit within a reasonable time period established by the District Ranger.
 - * Acknowledge in writing that they have no interest in the real property on which the structure(s) are constructed and that any cabin or related structure constructed under the authority of the special use authorization shall be the property of the United States.
 - * Submit with their applications a sketch or photograph, and a map of the proposed structure(s) showing the specific geographical location.
 6. Special use permits will contain the following provision: "Chain-saws, generators or other motorized equipment shall not be used on the permit area unless specifically approved by the Regional Forester."
- C. Cabins and related structures which were in place on December 2, 1980, for which a valid authorization does not exist, may be authorized with a non-transferable renewable five-year special use authorization by the Regional Forester for traditional and customary uses if the use is compatible with the purposes for which the Wilderness was established. No permits shall be issued for private recreational use. These permits shall be renewed until the death of the last immediate family member using the cabin as a dwelling. Revocation of the permit must be by the Regional Forester, after notice and hearing establish that continued use is causing, or may cause, significant harm to the principal purposes for which the Wilderness was established (ANILCA 1303(b)).
1. To qualify for an authorization the applicant must:
 - * Demonstrate by affidavit, bill of sale, or other documentation, proof of possessory interests or rights of occupancy in the cabin.

- * Submit a list of all immediate family members.
 - * Submit a sketch or photograph and a map of the cabin and related structures showing its geographic location.
 - * Agree to vacate all structures and remove all personal property within a reasonable time period established by the District Ranger.
 - * Acknowledge, in writing, that there is no interest in the real property on which the cabin and structures are located.
2. The use of motorized ground equipment, not designed for personal transport use, is authorized in and about authorized structures and facilities on the permitted area for a period not to exceed the termination or the revocation of the authorization. Authorized ground equipment includes chainsaws, generators, power brushcutters, and other hand-held tools and appliances, but *not* all terrain vehicles (ATV's), motorcycles, or other types of off-road vehicles (ORV's) except snowmachines. Power lawnmowers, rototillers, and other power garden equipment may be used only on existing lawns and gardens that were established prior to the designation of the area as wilderness.
 3. Cabins and associated structures which do not qualify for special use authorization shall be removed by the owner unless accepted as a donation to the United States. Cabins that remain will be posted as property of the United States. Cabins which may be useful for emergency shelter may be designated by the Forest Supervisor as public use cabins or posted for use as emergency public shelters.
- D. Existing valid special use authorizations for cabins, homesites, or similar structures which were in effect on December 2, 1980, shall be renewed unless the Regional Forester finds, following notice to the permittee and after the permittee has had a reasonable opportunity to respond, that the permitted structure constitutes a direct threat or a significant impairment to the purpose for which the Wilderness was established. (ANILCA, Section 1303(d) and Section 101 (b).)
1. Authorizations in effect on December 2, 1980 will be considered for renewal in accordance with provisions of the existing authorization and reasonable regulations which may be prescribed.
 2. The structures authorized by these authorizations may be maintained, rehabilitated, modified, replaced, or removed, but not enlarged.
 3. All modifications and replacement plans will require form, color, and materials which blend and are compatible with the immediate and surrounding wilderness landscape.
 4. In the case of conflicts which could lead to termination of the permit, the permittee will be offered reasonable opportunity to correct the conflict.
 5. The special use authorization may be transferred at the election or death of the original permittee. The original permittee is the one of record on December 2, 1980. This is a transfer of the authorization in effect on December 2, 1980; not the issuance of a new special use authorization. The transfer may be accomplished following the normal procedures except that the special use authorization will be amended to change the name of the permittee instead of issuing a new authorization.

6. The amendment will also contain the following tenure clauses:
 - * This permit is nontransferable, and a new permit will not be issued to any subsequent owner of the improvements or to any person holding any interest in the improvements.
 - * If the present permittee, herein named, ceases to have personal need for, or to make personal use of, the site for the purpose for which the permit is issued, this permit will terminate and the structures on the area shall be disposed of as provided in the conditions of the permit.
 - * No additional improvements shall be constructed without prior written approval of the Regional Forester.
 - * The use of motorized ground equipment, not designed for personal transport use, is authorized in and about authorized structures and facilities on the permitted area for a period not to exceed the termination or the revocation of this authorization. Authorized ground equipment includes chain-saws, generators, power brushcutters, and other hand-held tools and appliances, but *not* all terrain vehicles (ATV's), motorcycles, or other types of off-road vehicles (ORV's) except snowmachines. Power lawnmowers, rototillers, and other power garden equipment may be used only on existing lawns and gardens that were established prior to the designation of the area as Wilderness.
- E. Provide for the continuance of existing and future establishment and use of temporary campsites, tent platforms, shelters, and other temporary facilities and equipment directly related to and necessary for the taking of fish and wildlife in accordance with ANILCA (Sec. 1316). These temporary facilities will be regulated as follows:
 1. Permits are limited to a period not to exceed one year, but may be renewed.
 2. Authorized facilities and/or equipment must be directly and necessarily related to the taking of fish and wildlife. Permits will only be issued when the following conditions are met:
 - * the facilities are needed as a practical necessity to conduct legal hunting, trapping, and fishing activities that occur either within the wilderness or in adjacent waters.
 - * the applicant has no feasible alternative location outside the Wilderness.
 3. Does not include cabins.
 4. Does not include motorized forms of transportation other than snowmachines, motorboats, or fixed-wing airplanes.
 5. The specific location of temporary facilities will not cause physical resource damage, and should be located and designed to minimize conflicts with other users.
 6. Tent platforms, toilets, or other constructed facilities should be located approximately one-half mile, or more, from popular beaches, lakes, recreational boat anchorages (both developed and undeveloped), or other special recreation places. Consider season of use, compatibility of activities, core use areas, ROS considerations, and other factors in assessing the 1/2 mile guideline.
 7. Temporary camp facilities in wilderness will include at least the following conditions:

- * The time of occupancy will be limited to coincide with the hunting or fishing season for the species for which the temporary facility is being used.
 - * At the end of the specified occupancy, tents will be taken down and tent platforms laid flat. The toilet pits will be backfilled and unnecessary equipment removed from the site.
 - * Temporary structures will be built with materials which blend with and are visually compatible with the surrounding landscape.
 - * Temporary facilities will be screened from the water, and located so that they are unobtrusive as seen from trails and areas of public use.
8. The Forest Supervisor may determine, after adequate public notice, that the establishment and use of new facilities or equipment would constitute a significant expansion of existing facilities or uses which would be detrimental to the purposes for which the Wilderness was established, including its wilderness character. Upon such determination the Forest Supervisor may deny the use or establishment of new facilities and equipment in accord with ANILCA (Sec. 1316 (b)).
- F. Allow reasonable access to, and operation and maintenance of existing air and water navigation aids, communication sites, and related facilities, as well as existing facilities for national defense purposes, weather, climate and fisheries research and monitoring. Allow the continuation of necessary motorized access at existing sites (ANILCA Section 1310(a)).
- G. New facilities proposed for these activities and purposes, except communications sites, shall be permitted: 1) following consultation between the head of the Federal agency undertaking the establishment, operation, or maintenance, and the Regional Forester; and, 2) in accordance with such terms and conditions as may be mutually agreed upon in order to minimize the adverse effects of such activities on the wilderness resources (ANILCA, Section 1310).
1. Perform environmental analysis to evaluate the effects of such proposals on wilderness resources and to provide the basis for determining the necessary terms and conditions under which the use will be permitted.
 2. Mechanized transport and motorized equipment may be authorized where no other feasible alternative exists.
 3. Forest Supervisors will consult with the permittees and jointly develop an operating plan, documenting procedures which will minimize impacts on the wilderness resources without unreasonably limiting the operation and maintenance of the proposed facilities.
- H. This Land Use Designation represents a Transportation and Utility System (TUS) "Avoidance Area." Transportation and utility sites and corridors may be located in this Land Use Designation only after an analysis of potential TUS opportunities has been completed and no feasible alternatives exist outside this LUD.
- I. Onshore facilities such as waterlines, storage areas, and shoreties for mariculture shall not be permitted in Wilderness.

Landline Location and Maintenance: LAND231, LAND24

- A. Provide adequate marking for the public and Forest Service employees to distinguish land ownership.

1. Survey, mark, and post property lines of inholdings and adjacent private lands. Give highest priority to those landlines that are adjacent to private lands where activities or occupancies are likely to encroach on wilderness. The next priority is adjacent to trails, canoe routes, and other wilderness transportation corridors or areas of frequent human use.
- B. Provide adequate marking of wilderness boundaries to prevent encroachment of non-compatible activities from adjacent public lands.
- C. Determine survey, marking, and posting priorities by the degree to which adjacent land management is compatible with the Wilderness classified lands.

Land Ownership Adjustments: LAND26

- A. Acquire private inholdings as opportunities arise.
 1. Acquisition of private inholdings within the Wilderness is a continuing high priority.
 2. As opportunities arise, acquire private inholdings through donation, exchange, or purchase.

**MINERALS
GEOLOGY**

Minerals and Geology Administration: MG12

Forest Lands Withdrawn From Mineral Entry

- A. Forest lands within Wilderness are withdrawn from mineral entry, subject to valid existing rights.
- B. Claimants with valid claims located within the Wilderness retain valid existing rights, if such rights were established prior to the date that Wilderness lands were withdrawn from mineral entry.
- C. Permit reasonable access to mining claims in accordance with the provisions of approved Plans of Operation (ANILCA, Section 1110(b)).
- D. Section 1010 of ANILCA provides for the assessment of oil, gas, and other mineral potential on all public lands in Alaska. Core and test drilling for geologic information purposes, but excluding exploratory oil and gas test wells, may be authorized within Wilderness. Air access shall be permitted for such assessment activities.

Plan of Operations

- A. Encourage use of state-of-the-art techniques for developing minerals to reduce impacts to wilderness values to the extent feasible. Include mitigation measures that are compatible with the scale of proposed development and commensurate with potential resource impacts.
- B. The use of motorized equipment may be authorized where no other feasible alternative for access and project operation exist. Apply appropriate Transportation Forest-wide Standards and Guidelines to the location and construction of mining roads (ANILCA, Section 1110 (b)).

**RECREATION AND
TOURISM**

Recreation Use Administration: REC122

Recreation Management and Operations

- A. To the degree consistent with the overall purposes of designation, provide a spectrum of wildland recreation opportunities which reflects the inherent ecological, cultural, historical, prehistorical, scientific and sociological conditions found within the Wilderness.
- B. Provide a mix of primitive and semi-primitive ROS settings which emphasize existing opportunities, while recognizing exceptions due

to ANILCA authorizations and development activities outside of wilderness. Provide for the appropriate activities throughout the Wilderness. Protect the integrity of wilderness resources through integrated project planning and implementation within the wilderness.

1. Provide the existing recreation settings and opportunities unless activities and practices authorized by the Regional Forester cause change in the ROS setting(s). Seek to minimize the changes through project design and mitigation. Manage recreation and tourism use in a manner that is compatible with the long-term objectives of the Wilderness.
 2. In locations where scheduled activities change the recreation setting(s), manage the new setting(s) in accordance with the appropriate ROS guidelines. Seek to minimize changes to the setting through project design and mitigation. Maintain the capability of the wilderness to provide quality primitive and semi-primitive recreation on a sustained basis.
- C. Manage recreation and tourism use and activities to meet the appropriate levels of social encounters, on-site development, methods of access, and visitor impacts indicated for the established ROS settings. (Consult national and regional Handbooks.)
- D. Provide for general public use of the Wilderness in accordance with ANILCA provisions for the use of snowmachines (during periods of adequate snow cover), motorboats, fixed-wing airplanes, and nonmotorized surface transportation methods for traditional activities that are legal and for travel to and from villages and homesites (ANILCA Sec. 1110).
1. Traditional activities include, but are not limited to, recreation activities such as sportfishing, sport hunting, boating, sightseeing and hiking.
 2. Traditional activities, which are legal, shall be allowed to continue where such use has previously occurred. No proof of pre-existing use will be required in order to use a snowmachine, motorboat, or fixed-wing airplane. No permits will be required for the general public to use these specific types of motorized transport or any nonmotorized surface transportation methods for traditional activities that are legal, unless an area is specifically closed to public use. Such use is subject to reasonable regulation by the Regional Forester to protect natural and other values of the Wilderness from damage.
 3. Restrictions or closures of specific areas within the Wilderness to transportation methods listed in "D" above, may be invoked by the Regional Forester following adequate public notice and public hearing, and the determination that such use would be detrimental to wilderness resource values. Closure of broad areas is not contemplated.
 4. Fixed-wing airplanes will be allowed to land on all suitable lakes, beaches, and icefields without a permit unless the activity (i.e., commercial use) requires a permit.
 5. The landing of helicopters by the general public will be limited to specific helicopter access areas designated by the Regional Forester.
- E. Maintain existing public use cabins and shelters at present or improved condition. Consider additional public use cabins and/or shelters only when needed for health and safety purposes (ANILCA, Sec. 1315(d)).

1. Base new cabin or shelter locations on an analysis of public health and safety needs. The analysis shall include at least the following factors:
 - * Difficulty of access particularly in regard to timely pick-up of users by floatplane or boat or for emergency situations.
 - * Presence of natural hazards including weather, brown bears, and dangerous tide and currents.
 - * History of fatalities and life-threatening incidents in the area.
 - * Natural attractions that entice people to use a particular area.
 2. Design of new or replacement cabins or shelters will use drawings approved for use in Wilderness.
 3. Appurtenant structures to the cabin or shelter will be limited to a toilet, a woodshed, and minimum structures necessary for resource protection and accessibility.
 4. All structures shall be built of materials, which blend with, and are compatible with, the foreground and middleground landscape surrounding the site.
 5. Decisions to construct new cabins or relocate or move existing cabins must be supported by an environmental analysis.
 6. The Forest Supervisor will report any proposed public use cabin or shelter removal or additions in the Annual Wilderness Report for notification of the appropriate congressional committees (ANILCA Sec. 1315(d)).
- F. With the help of user groups, develop "Leave No Trace" camping and use programs that encourage dispersal and use of durable campsites. Where dispersal is not feasible, develop designated campsites and encourage their use.

Outfitter/Guide Operations

- A. Special use authorizations permitting individuals or organizations to provide visitor services in Wilderness may be issued if there is demonstrated need for the service(s) and they are deemed appropriate for the area proposed. District Rangers will maintain a record of currently active authorizations.
 1. In selecting persons to provide new visitor services, except for guided hunting and sport fishing, preference shall be given: 1) to the Native Corporation most directly affected by the establishment of the subject Wilderness, and 2) to local residents as will be defined by the Secretary of Agriculture (ANILCA, Section 1307).
 2. Outfitter and guide permit holders may be authorized the use of assigned temporary campsites for specific dates within a use season. Assigned campsites shall not include structures such as tent platforms or equipment caches (except as in 3. below).
 3. Outfitter and Guide services for the taking of fish and wildlife may be allowed certain temporary camp facilities by ANILCA, Section 1316. (See Lands Section.)
 4. Generally consider a party size of no more than 12 persons for any one site or activity. Allow for case-by-case exceptions with District Ranger approval, for special circumstances such as safety concerns, youth groups, one time only guided tours, and resource protection.

Recreation Special Uses

- A. Major and minor developments other than those specifically provided for in ANILCA are illegal or not consistent with agency policy and regulations. Refer to the Recreation and Tourism Forest-wide Standards and Guidelines.

SCENERY

Scenery Operations: VIS1

- A. Activities are designed to not be visually evident to the casual observer.
 - 1. Apply Forest-wide Standards & Guidelines for the Retention Visual Quality Objective. This objective defines the maximum limit of allowable change to the visual character of the area; less visible evidence of activities such as those compatible with the Preservation Visual Quality Objective is acceptable.
 - 2. Design allowed structures, campsites and constructed trails to meet the Partial Retention Visual Quality Objective.

SOIL AND WATER

Watershed Resource Improvements: S&W2

- A. Undertake watershed improvements only where deteriorated soil and hydrologic conditions caused by humans or their influences create a threat or loss of wilderness values or where such conditions could cause serious depreciation of important environmental qualities outside of the Wilderness. For exceptions, see the Fish section.
- B. Use, whenever possible, indigenous plant species and materials in implementing watershed improvements.

SUBSISTENCE

Subsistence: SUB

- A. Rural residents engaged in subsistence uses shall have reasonable access to subsistence resources. Appropriate use of snowmachines, motorboats, and other means of surface transportation traditionally employed for such purposes by local residents shall be permitted, subject to reasonable regulation to protect wilderness resource values (ANILCA Section 811). The use of other mechanical/motorized equipment, such as chainsaws, is allowed by permit only.
- B. Allow subsistence wood gathering activities in Wilderness (primarily firewood and trolling poles) subject to reasonable regulations to protect wilderness resources. Cutting of green trees will be by permit and only if there is not a suitable source equally accessible outside the Wilderness.

TIMBER

Timber Resource Planning: TIM112

- A. Forested land is classified as unsuitable for timber production and withdrawn from the timber base.
- B. The following types of public uses may be authorized if done in a manner that minimizes impacts on the Wilderness:
 - * Beach log recovery on Wilderness coastlines is authorized by ANILCA, Section 1315(f). Permits will require that the recovery of logs above mean high tide be conducted from water without roads or use of vehicles on uplands, or use of chainsaws. Beachlog salvage is defined as the recovery of logs that have been lost in transit and washed up on beaches. Special provisions in ANILCA allow the recovery of logs from the coastline.

- * Removal, or use of trees cut as part of some other authorized use within the Wilderness. For example, clearing for a fish ladder.
- * Cutting of trolling poles on an emergency basis by fishermen using adjacent waters. A permit for this use is not required.
- * Trees may be cut for use in construction and maintenance of authorized structures when it is not feasible to obtain the necessary material from outside the Wilderness.
- * Taking of personal use wood will be limited to beach logs on coastlines which can be removed without roads or use of vehicles on uplands. The cutting of down trees in rivers and removal of trees from the banks (sweepers) is not compatible with Wilderness management objectives (the main channel of the Stikine River is an exception).

TRAIL

Trail Activities: TRAI1

- A. Provide for a diversity of outdoor recreation trail and waterway opportunities which are appropriate for the ROS class and management intent of the Wilderness. Emphasize nonmotorized and nonmechanized participation in activities such as hiking, mountaineering, spelunking, cross-country skiing, canoeing and kayaking.
- B. Emphasize primitive and semi-primitive recreation opportunities which are in harmony with the natural environment and consistent with the intent and purposes of Wilderness Act and ANILCA.
- C. Consider trail systems that provide:
 1. Connected, multi-day trip opportunities for both land trails and water trails.
 2. Alpine trail systems with access from saltwater anchorages, cabins, local communities, and resorts.
 3. Loop trail systems in connection with public use cabins.
 4. Access from local communities to snowline where development of snowtrails is feasible.

Trail Administration: TRAI2

- A. Trails and associated waterways leading to and within Wilderness often become the principal management tools for achieving management objectives. Construct and maintain trails, such as bridges and signs, so they:
 1. contribute to management goals and objectives.
 2. are compatible with the ROS setting.
 3. appear to be part of the Wilderness environment and not an intrusion upon it. Consult the Forest Service Trails Management Handbook, and Alaska Region Trails Construction and Maintenance Guide.

TRANSPORTATION

Transportation Operations: TRANS1

- A. New roads and new airstrips are not permitted, except to access surrounded state and private land and valid mining claims. Any transportation development in association with minerals extraction will be in accordance with an approved Plan of Operations, and subsequent annual work plans.
- B. Any existing roads in the Wilderness are closed to motorized uses unless authorized under ANILCA.

- C. Use of snowmachines, motorboats, fixed-wing airplanes and nonmotorized methods of surface transportation is permitted for traditional activities that are legal and for transportation to and from villages and homesites. (Consult ANILCA Section 1110 and Wilderness and Recreation Sections.)
- D. Provide adequate and feasible access for economic and other purposes to owners of land, including subsurface rights to land, valid mining claims, or other valid occupancies, which are effectively surrounded by Wilderness.
 - 1. The routes and types of access shall be practical in an economic sense; but do not necessarily have to be the most economically feasible alternative.
 - 2. District Rangers will work with the landowner, or his/her authorized representative, to work out reasonable solutions which will meet the intent of ANILCA (Sec. 1110(b) and 1323), while minimizing adverse impacts on wilderness resources and values.

WILDERNESS

Wilderness Resource Administration: WILD12

Wilderness Resource Management

- A. Manage all designated Wilderness to maintain an enduring wilderness resource as provided by the Wilderness Act of 1964, while providing for public access and uses specifically allowed by the Alaska National Interest Lands Conservation Act (ANILCA) of 1980 (P.L. 96-487). Consult Alaska Region Supplement to FSM 2320. Activities and practices authorized by ANILCA will be regulated or restricted in accordance with the special provisions of ANILCA.
- B. Use available opportunities to encourage and enlist public and private sector interest groups to work together in meeting wilderness management objectives. Emphasize programs which help in educating the using public in the appropriate conduct of activities and uses within Wildernesses (for example, "Leave No Trace.").
- C. To the extent feasible, the Forest Service will minimize the impacts of administrative activities on the Wilderness resources and visitors. Administrative activities include authorized use and wilderness resource related work being done by other agencies and cooperators. In developing project plans use the following guidelines:
 - 1. Encourage permittees and cooperators to minimize the use of mechanized vehicles and equipment to make their presence in the Wilderness as unobtrusive as possible even though authorized.
 - 2. The use of motorized vehicles and equipment by the Forest Service and other agencies for the administration of the Wilderness is subject to the following conditions:
 - * *Aircraft:*
 - Fixed-wing airplanes may land on all suitable lakes, rivers, beaches, and icefields.
 - The administrative use of helicopters on a case-by-case analysis of need and full consideration of all alternative options for access. Regional Forester approval is required for administrative use.

- Established air routes will be used to the extent practicable.
 - Low flights and continuous circling should be avoided.
 - Work logistics will be planned to minimize the number of aircraft flights over the wilderness and landings within a specific area.
- * *Motorboats on Rivers:*
 - Motorboats may be used on rivers for all administrative purposes under the same conditions that public use is allowed.
- * *Motorboats on Freshwater Lakes:*
 - Outboard motors of 10 horsepower or less may be used for administering the Wilderness, gathering firewood for public use cabins, and transporting crews and equipment on lakes specified by the District Ranger.
- * *Chainsaws and Power Brushers:*
 - Use of chainsaws and power brushers is allowed for trail and cabin maintenance and firewood cutting when authorized by the Forest Supervisor.
 - Use of chainsaws and power brushers is allowed for trail construction and reconstruction projects when specifically authorized in writing by the Forest Supervisor.
- * *Generators and Other Motorized Tools:*
 - May be used for construction/reconstruction projects when use has been specifically authorized in writing by the Forest Supervisor. They may not be used for normal maintenance work or in field camps except where specifically authorized by the Forest Supervisor.
- * *Snowmachines:*
 - May be used to administer Wilderness under the same snow conditions that public use is allowed.
- * *Exceptions:*
 - Aircraft and mechanized equipment may be used as needed for search and rescue purposes and law enforcement.
 - The temporary use of motorized equipment may be allowed for fisheries research, management, rehabilitation, and enhancement activities, when such use is authorized in the project environmental assessment or Decision Notice approved by the Forest Supervisor.
 - The use of chainsaws and power winches is allowed for clearing of navigational hazards along the Stikine River.

All other administrative activities must be completed using primitive non-motorized methods unless specifically authorized by the Forest Supervisor.

Wilderness Planning

- A. Wilderness Implementation Schedules (WIS) will be developed by the areas for each Wilderness. Direction from this plan will be incorporated into the WIS. Additional direction may be developed for an individual Wilderness in response to issues and concerns. If the

direction is beyond the intent of these standards and guidelines, yet consistent with ANILCA and the Wilderness Act, it may require an amendment to the Forest Plan. Direction in previously approved Wilderness plans which is consistent with this plan, may be incorporated as part of the WIS. The WIS may be updated as needed.

- B. Establish sub-unit management zones within the Wilderness to deal with unique situations, or to integrate local issues and concerns with management activities, where necessary, to better accomplish Wilderness objectives, as identified in the WIS.
 - 1. The boundaries of sub-units should generally be located on identifiable topographic features and/or coincide with existing Recreation Opportunity Spectrum (ROS) classification areas.
 - 2. Establishment of sub-zones may result in a NEPA analysis depending upon the magnitude of, and need for change.

WILDLIFE

Wildlife Habitat Improvement: WILD22

- A. Conduct wildlife habitat projects only when the principal objective is to protect or restore the wilderness resource, or to assist in the recovery of a federally-listed threatened or endangered species.

Wildlife Habitat Planning: WILD112

- A. Wildlife management activities will be consistent with wilderness objectives, and will protect and maintain natural processes and wilderness values.
- B. Reintroduce wildlife species only if the species was once indigenous to an area and was extirpated by human-induced events. Transplants, removal or reintroduction, may be permitted, if necessary: (a) to perpetuate or recover a threatened or endangered species; or (b) to restore the population of an indigenous species eliminated or reduced by human influence. Management activities will be conducted in a manner compatible with wilderness environment.
 - 1. Work with the Alaska Department of Fish and Game to manage existing populations of non-indigenous species to discourage their dispersal into wilderness.
 - 2. No further introductions of non-indigenous species will be planned, either to supplement existing populations or to replace failed introductions.
 - 3. Non-indigenous species introduced into wilderness areas prior to designation will be jointly managed with the Alaska Department of Fish and Game.

WILDERNESS NATIONAL MONUMENT

Management Area WM

Both National Monuments contain Congressionally-designated Wilderness and nonwilderness National Forest System lands. Management direction for the nonwilderness portion of the National Monuments is provided in the Nonwilderness National Monuments land use designation.

Goals

To manage the Wilderness portions of Admiralty Island and Misty Fiords National Monuments to maintain an enduring wilderness resource while providing for public access and uses consistent with the Wilderness Act of 1964 and the Alaska National Interest Lands Conservation Act of 1980 (ANILCA).

To protect and perpetuate natural biophysical and ecological conditions and processes.

To provide a high degree of remoteness from the sights and sounds of humans, and opportunities for solitude, primitive recreation, and tourism activities consistent with wilderness preservation.

Objectives

Complete implementation schedules for each National Monument Wilderness by applying the standards and guidelines of this LUD to each individual area and situation.

Manage recreation and tourism use and activities to meet the appropriate levels of social encounters, on-site developments, methods of access, and visitor impacts indicated for the established recreation opportunity spectrum.

Provide for public use of the Wilderness in accordance with ANILCA provisions for motorized and non-motorized access and travel, including reasonable traditional subsistence use by rural residents.

Provide trails and primitive facilities that are in harmony with the natural environment and that promote primitive and semi-primitive recreation experiences.

Desired Future Condition

The Wilderness portions of Admiralty Island and Misty Fiords National Monuments are characterized by extensive, unmodified natural environments. Ecological processes and natural conditions are not measurably affected by past or current human uses or activities. Users have the opportunity to experience independence, closeness to nature, solitude and remoteness, and may pursue activities requiring self-reliance, challenge and risk. Motorized and mechanized use is infrequent and limited to the minimum needed for the administration of wilderness, access to state and private lands, subsistence uses, and for public access and other uses specifically prescribed by ANILCA.

At-a-Glance . . .

Facilities

Structures consist of those needed for the administration and protection of Monument Wilderness resources and those needed for the health and safety

of visitors and other activities specially allowed by ANILCA. No new permanent administrative facilities are constructed.

Fire	All wildfires are suppressed using a suppression action that minimizes fire suppression costs and resource damage. Natural prescribed fire, to enhance natural ecological processes, is not presently used because there is not a fire history of natural ignitions on the Tongass, but may be considered in the future.
Fish	Fish habitat improvement projects to meet the objectives of the Regional Comprehensive Salmon Plan are designed and maintained in a manner that minimizes adverse effects on wilderness values.
Forest Health	Natural occurrences of insects and diseases are allowed to play their normal role in the ecosystem succession. Scientific study of natural populations is encouraged using research methods appropriate for the wilderness setting and goals.
Heritage resources	Scientific study of heritage resources is encouraged and interpretation is provided in a manner consistent with other Monument Wilderness objectives.
Land Uses	Structures and land uses consist of those authorized by ANILCA, including: those permitted for subsistence uses, temporary facilities for the taking of fish and wildlife, existing air and water navigation aids, communication sites, weather, climate and fisheries research and monitoring sites, and those needed for specially authorized activities.
Minerals	Mineral activity is limited to claims on which valid existing rights have been established. The designated Monument Wilderness is withdrawn from mineral entry, subject to valid existing rights.
Recreation/Tourism	A choice of primitive and semi-primitive recreation opportunities and experiences are provided through the application of the ROS setting criteria. These settings provide appropriate degrees of solitude, risk, and challenge associated with remote wildland environments. Motorized use is infrequent and associated with access to the Monument Wilderness, public use cabins, and subsistence use within this Land Use Designation.
Scenery	Activities are designed to not be visually evident to the casual observer, meeting the Retention VQO. Permitted structures blend with the natural landscape.
Soil and Water	Watersheds are managed in a natural condition.
Subsistence	Subsistence activities occur in accordance with Federal and state regulations and may be seasonally prevalent in some areas.
Transportation	Travel is primarily by trails or waterways and is essentially non-motorized except for the use of fixed-wing airplanes, motorboats, and snowmachines. Access is provided for as specified in ANILCA Sections 811, 1010, 1111, 1310, 1315(b) and 1323.

Timber

Activities are limited to subsistence use, beach log recovery, administrative use necessary for management and protection of Monument Wilderness values and others uses in ANILCA. Taking of personal use wood is limited to beach logs which can be removed without roads or use of vehicles on uplands. The cutting of down trees in rivers (sweepers) and removal of trees from the banks is not compatible with wilderness management objectives.

Wilderness

Manage all designated Wilderness to maintain an enduring wilderness resource while providing for public access and uses consistent with the purposes of the Wilderness Act of 1964 and the Alaska National Interest Lands Conservation Act of 1980 (ANILCA). The National Monument Wilderness is managed in the same manner and intent as the other Wildernesses on the Forest. (See Land Use Designation WW.)

Wildlife

Scientific study of indigenous species and their habitats is encouraged with emphasis on identifying their roles in ecosystem dynamics and on impacts of human uses.

Apply the following Forest-wide Standards and Guidelines located in Chapter 4:

RESOURCE	SECTION	SUB-SECTIONS	PAGE
AIR	AIR	All	4-2
BEACH AND ESTUARY FRINGE	BEACH	None	4-3
BIODIVERSITY	BIO	I(A:1-5;12-14)	4-7
FACILITIES	FAC1,FAC21,FAC22 FAC23	All All	4-9
FIRE	FIRE12	All	4-10
FISH	FISH	All	4-12
FOREST HEALTH	HEALTH1	I(B:1;C)	4-18
HERITAGE RESOURCES	HER	All	4-19
KARST AND CAVE RESOURCES	KARST CAVE	I-III All	4-23
LANDS	LAND	All	4-26
LAW ENFORCEMENT	LAW	All	4-39
MINERALS AND GEOLOGY	MG11 MG12	All I,III,IV,VI,VII	4-40
RECREATION AND TOURISM	REC111 REC112 REC122	All I,II(A),III I,II,III(B),V-VII	4-42
RIPARIAN	RIP1,RIP2 RIP3	All I,II(A-E)	4-61
RURAL DEVELOPMENT	RUR	All	4-80
SCENERY	VIS1 VIS11 VIS12	All I(A) I(B,D),II-III	4-81
SOIL AND WATER	S&W1111,112,2 S&W112	All I	4-89
SUBSISTENCE	SUB	All	4-93
THREATENED, ENDANGERED, SENSITIVE	TE&S	All	4-95
TIMBER	TIM111,111-1 TIM114	All VIII(D)	4-101
TRAIL	TRAI1 TRAI2	I(A-E;F:1,3,5,6) All	4-112
TRANSPORTATION	TRAN	None	4-115
WETLANDS	WET	All	4-123
WILDLIFE	WILD112 WILD22 WILD23	I-III;V;VI(A,B,D);VII,VIII; IX(A:1-7;10);X,XI(A:1,3);XII; XIII I(A:1,B) All	4-124

Apply the following Land Use Designation Standards & Guidelines:

FACILITIES

Administrative Facilities: FAC2

- A. Construct no new permanent administrative facilities in Monument Wilderness, except as consistent with ANILCA, Sections 1303, 1306, 1310, and 1315.
- B. Allow the continued operation and maintenance of permanent administrative facilities, for which there is an ongoing need (ANILCA Section 1306 (b)).
 - 1. When reconstruction of existing permanent administrative structure is necessary, reconstruct or replace them with structures of compatible design.
 - 2. During reconstruction and maintenance activities:
 - * Paint or stain structures to blend with the environment.
 - * Keep clearing of vegetation adjacent to the site to the minimum practicable.
 - * Select materials that are natural in appearance.
- C. Allow temporary facilities and crew barges for administration seasonally.
 - 1. Temporary administrative camps used by wilderness rangers, trail crews, or for other administrative activities should avoid areas used for camping by the general public and should be screened from view.
 - 2. Temporary administrative camps may remain in place only during periods required for the administrative activity. All equipment and materials will be removed or collapsed and laid flat the the end of the field season or during other extended periods of non-use.
 - 3. Temporary camps will seek to achieve minimum impact on the land. There will be no permanent foundations or anchors, and only minimal clearing of vegetation at campsites.
 - 4. Crew barges should be located in unobtrusive locations. They may be periodically moved and relocated to support administrative needs.
- D. Administrative use of public cabins and shelters in wilderness is allowed, but should be scheduled to avoid conflict with public use.
- E. Radio repeaters may be seasonally located in Monument Wilderness when necessary to provide essential communications for the health and safety of people involved in the administration of the area. Permanent radio repeaters currently located in Wilderness may be allowed to remain.

FIRE

Fire Suppression: FIRE12

Suppression Action

- A. All wildfires will be suppressed using the suppression option identified in the Southeast Alaska/Prince William Sound Fire Management Plan. An Escaped Fire Situation Analysis (EFSA) of expected fire behavior, time of year, and locations with respect to private land and adjacent land use areas, may lead to a lower strategy. If an EFSA

discloses no adverse effects and it is more cost-efficient, the lower strategy will be used.

- B. Suppression tactics will emphasize the least possible disturbance or evidence of human presence.
 - 1. Use of mechanized equipment will require Forest Supervisor approval except the Regional Forester shall approve use of tractors for fire suppression.
 - 2. Suppression tactics will avoid human/bear conflicts and existing policy will be emphasized to leave no trash or any other kinds of bear attractants in the area.
 - 3. Rehabilitation of all campsites, suppression lines, and other evidence of human presence will occur as soon as it is safe, but within one year after the fire occurs.

Fuel Improvements: FIRE2

Prescribed fire

- A. As a general management practice, management-ignited prescribed fire will not be used in this Land Use Designation. Should it become necessary to consider the use of management-ignited prescribed fire, FSM 2324 provides direction.
- B. As a general management practice, prescribed natural fire will not be used in National Monument Wilderness because the Tongass does not have a history of natural ignitions. Should it become necessary to consider the use of prescribed natural fire, the Forest Plan must be amended to analyze, justify, and approve prescribed natural fire programs. (Consult FSM 5142.)

FISH

Fish Habitat Planning: FISH112

Planning

- A. Plan for fisheries in Monument Wilderness consistent with ANILCA Section 1315(b) which recognizes the goal of restoring and maintaining fish production in the State of Alaska to optimum sustained yield levels and in a manner which adequately assures protection, preservation, enhancement, and rehabilitation of the wilderness resource. Subject to reasonable regulations, permanent improvements and facilities such as fishways, fish weirs, fish ladders, fish hatcheries, spawning channels, stream clearance, egg planting, and other accepted means of maintaining, enhancing, and rehabilitating fish stocks may be permitted. For this purpose, optimum sustained yield levels will be considered synonymous with the long-term harvest goals documented in the State of Alaska Comprehensive Salmon Plans and other state fisheries plans. Consult R-10 supplements to FSM 2632 and FSM 2320 for further details.
- B. Evaluate fish habitat improvement during project planning by considering: 1) availability of suitable non-wilderness opportunities which should be used first; 2) effects on wilderness conditions, in general; 3) effects resulting from the introduction of species not indigenous to the watershed; 4) the appropriateness of structures both in type and scale to the Recreation Opportunity Spectrum Class (ROS) setting; and 5) the need to provide well-distributed fisheries that support sport and commercial fisheries, subsistence, and community stability.

- C. The need for wilderness aquaculture projects (as described in ANILCA Section 1315(b)) must be determined on a broad basis that includes the potential of private, state, and Federal nonwilderness projects.
- D. In planning, stress protection of fish habitat to prevent the need for mitigation.

Fish Habitat Improvement: FISH22

- A. Facilities shall be constructed in such a rustic manner as to blend into the natural character of the area and shall be limited to those essential to the project (ANILCA 1315(b)).
- B. Reasonable access, including the temporary use of motorized equipment shall be permitted, subject to reasonable regulation to maintain wilderness character, water quality, and fish and wildlife values of the area.

FOREST HEALTH

Forest Health Management: HEALTH1

- A. Natural occurrences are allowed to play their normal role in ecological succession.

Forest Insect and Disease Survey and Inventory: HEALTH2

- A. Survey and inventory visible outbreaks.

HERITAGE

Heritage Resource Activities: HER

Enhancement

- A. Heritage resources are available for scientific study to the extent that the study is consistent with: 1) the preservation of Monument Wilderness; 2) the intent of the Wilderness Act; and, 3) heritage resource management objectives.
- B. Heritage resources are available for recreational, scenic, scientific, educational, conservation, and historic uses, consistent with management of Monument Wilderness.
 - 1. Provide interpretive information concerning heritage resources to users in the form of exhibits and publications outside of the Monument Wilderness.

Evaluation

- A. Develop priorities and schedule management activities to implement heritage resource inventory, evaluation, protection, and allocation within the Monument Wilderness.
 - 1. Identify heritage properties to be nominated to the National Register of Historic Places.
 - 2. Identify, classify and evaluate known heritage resources.
 - 3. Identify heritage properties that require stabilization or other protective measures.

KARST AND CAVES

Cave Management Program: CAVE

- A. Identify opportunities for interpretation of caves for public education and enjoyment. Interpretation will generally occur outside this LUD.

- B. Manage caves as Class I (Sensitive) or Class 3 (Undeveloped) as described in the Karst and Cave Resources Forest-wide Standards and Guidelines.

LANDS

Special Use Administration (non-Recreation): LAND122

- A. Authorize only activities which consistent with the Wilderness Act or are specifically allowed by ANILCA and are otherwise in compliance with management direction of the Forest Plan. (Consult FSM 2700, FSM 2320, and Regional Supplements.)
 - 1. Analyze proposals on a case-by-case basis.
 - 2. Permit only activities which will not adversely affect the purposes for which the Monument Wilderness was established.
 - 3. Integrate special use management with ROS so that approved uses and activities conform to adopted ROS criteria.
 - 4. Avoid authorizing uses which are not dependent upon wilderness resources or uses for which reasonable alternative locations exist outside the Monument Wilderness.
- B. New Special Use Cabins and related structures may be permitted by the Regional Forester in accordance with Section 1303.(b)(1) of ANILCA under the following conditions:
 - 1. The permit is nontransferable and limited to a 5-year term.
 - 2. The determination is made that the proposed use, construction, and maintenance of the structure(s) are compatible with the purpose for which the Monument Wilderness was established.
 - 3. The determination is made that the proposed cabin is either directly related to the administration of the Monument Wilderness or the continuation of an ongoing use otherwise allowed within the Monument Wilderness; where a) the applicant has no reasonable alternative site for constructing a cabin; and b) the cabin will not be used for private recreational use.
 - 4. The United States shall retain ownership of the cabin and related structures.
 - 5. Applicants must:
 - * Agree to vacate the structure(s) and remove all personal property upon nonrenewal or revocation of the permit within a reasonable time period established by the District Ranger.
 - * Acknowledge in writing that they have no interest in the real property on which the structure(s) are constructed and that any cabin or related structure constructed under the authority of the special use authorization shall be the property of the United States.
 - * Submit with their applications a sketch or photograph and a map of the proposed structure(s) showing the specific geographical location.
 - 6. Special use permits will contain the following provision: "Chain-saws, generators, or other motorized equipment shall not be used on the permit area unless specifically approved by the Regional Forester."
- C. Cabins and related structures which were in place on December 2, 1980, for which a valid permit does not exist, may be authorized by the Regional Forester for traditional and customary uses if the use is compatible with the purposes for which the Monument Wilderness

was established. No permit shall be issued for private recreational use. These permits shall be renewed until the death of the last immediate family member using the cabin as a dwelling. Revocation of the permit must be by the Regional Forester, after notice and hearing establish that continued use is causing, or may cause, significant harm to the principal purposes for which the Monument Wilderness was established.

1. To qualify for a permit the applicant must:
 - * Demonstrate by affidavit, bill of sale, or other documentation, proof of possessory interests or rights of occupancy in the cabin.
 - * Submit a list of all immediate family members.
 - * Submit a sketch or photograph of the cabin and related structures showing its geographic location.
 - * Agree to vacate all structures and remove all personal property within a reasonable time period established by the District Ranger.
 - * Acknowledge, in writing, that there is no interest in the real property on which the cabin and structures are located.
 2. The use of motorized ground equipment, not designed for personal transport use, is authorized in and about authorized structures and facilities on the permitted area for a period not to exceed the termination or the revocation of the authorization. Authorized ground equipment includes chainsaws, generators, power brushcutters, and other hand-held tools and appliances, but *not* all terrain vehicles (ATV's), motorcycles, or other types of off road vehicles (ORV's) except snowmachines. Power lawn mowers, rototillers, and other power garden equipment may be used only on existing lawns and gardens that were established prior to the designation of the area as wilderness.
 3. Cabins and associated structures which do not qualify for special use authorizations shall be removed by the owner unless accepted as a donation to the United States. Cabins that remain will be posted as property of the United States. Cabins that may be useful for emergency shelter may be designated by the Forest Supervisor as a public use cabin or posted for use as an emergency public shelter.
- D. Existing valid special use authorizations for Cabins, Homesites, or Similar Structures which were in effect on December 2, 1980 shall be renewed unless the Regional Forester finds, following notice to the permittee and after the permittee has had a reasonable opportunity to respond, that the permit constitutes a direct threat or a significant impairment to the purpose for which the Monument Wilderness was established (ANILCA, Section 1303(d) and Section 101 (b).)
1. Authorizations in effect on December 2, 1980 will be considered for renewal in accordance with provisions of the existing authorization and reasonable regulations which may be prescribed.
 2. The improvements authorized by these permits may be maintained, rehabilitated, modified, replaced, or removed, but not enlarged.

3. All modifications and replacement plans will require form, color, and materials which blend and are compatible with the immediate and surrounding wilderness landscape.
 4. In the case of conflicts which could lead to termination of the authorization, the permittee will be offered reasonable opportunity to correct the conflict.
 5. The special use authorization may be transferred at the election or death of the original permittee. The original permittee is the one of record on December 2, 1980. This is a transfer of the authorization in effect on December 2, 1980; not the issuance of a new special use authorization. The transfer may be accomplished following the normal procedures except that the special use authorization will be amended to change the name of the permittee instead of issuing a new authorization.
 6. The amendment will also contain the following tenure clauses:
 - * This permit is nontransferable, and a new permit will not be issued to any subsequent owner of the improvements or to any person holding any interest in the improvements.
 - * If the present permittee, herein named, ceases to have personal need for, or to make personal use of, the site for the purpose for which the permit is issued, this permit will terminate and the structures on the area shall be disposed of as provided in the conditions of the permit.
 - * No additional improvements shall be constructed without prior written approval of the Regional Forester.
 - * Chainsaws, generators, or other motorized equipment shall not be used on the permit area unless specifically approved by the Regional Forester.
 - * The use of motorized ground equipment, not designed for personal transport use, is authorized in and about authorized structures and facilities on the permitted area for a period not to exceed the termination or the revocation of this authorization. Authorized ground equipment includes chain-saws, generators, power brushcutters, and other hand-held tools and appliances, but *not* all terrain vehicles (ATV's), motorcycles, or other types of off road vehicles (ORV's) except snowmachines. Power lawnmowers, rototillers, and other power garden equipment may be used only on existing lawns and gardens that were established prior to the designation of the area as wilderness.
- E. Provide for the continuance of existing and future establishment and use of temporary campsites, tent platforms, shelters, and other temporary facilities and equipment directly related to and necessary for the taking of fish and wildlife in accordance with ANILCA (Sec. 1316). These temporary facilities will be administered as follows:
1. Permits are limited to a period not to exceed one year, but may be renewed.
 2. Authorized facilities and/or equipment must be directly and necessarily related to the taking of fish and wildlife. Permits will be issued only when the following conditions are met:
 - * The facilities are needed as a practical necessity to conduct legal hunting and fishing activities that occur either within the wilderness or in adjacent waters.

- * The applicant has no feasible alternative location outside the Monument Wilderness.
- 3. Does not include cabins.
- 4. Does not include motorized forms of transportation other than snowmachines, motorboats, or fixed-wing airplanes.
- 5. The specific location of temporary facilities will not cause physical resource damage, and should be located and designed to minimize conflicts with other users.
- 6. Tent platforms, toilets, or other constructed facilities should be located approximately one-half mile, or more, from popular beaches, lakes, recreational boat anchorages (both developed and undeveloped), or other special recreation places. Consider season of use, compatibility of activities, core use areas, ROS considerations, and other factors in assessing the 1/2 mile guideline.
- 7. Temporary camp facilities in Monument Wilderness will include at least the following conditions:
 - * The time of occupancy will be limited to coincide with the hunting or fishing season for the species for which the temporary facility is being used.
 - * At the end of the specified occupancy, tents will be taken down and tent platforms laid flat. The toilet pits will be backfilled and unnecessary equipment removed from the site.
 - * Temporary structures will be built with materials which blend with and are visually compatible with the surrounding landscape.
 - * Temporary facilities will be screened from the water, and located so that they are unobtrusive as seen from trails and areas of public use.
- 8. The Forest Supervisor may determine, after adequate public notice, that the establishment and use of new facilities or equipment would constitute a significant expansion of existing facilities or uses which would be detrimental to the purposes for which the Monument Wilderness was established, including its wilderness character. Upon such determination the Forest Supervisor may deny the use or establishment of new facilities and equipment in accord with ANILCA (Sec. 1316(b)).
- F. The following resorts were under permit prior to the establishment of the Monument Wildernesses. They will be administered in accord with ANILCA provisions as follows;
 1. *Thayer Lake Lodge*. Section 503(j) of ANILCA provides that the special use permit for Thayer Lake Lodge shall be renewed as necessary for the longest of either: 1) 15 years after December 2, 1980; or 2) the lifetime of the permittee, as designated in such permit as of January 1, 1979, or the surviving spouse or child of such permittee, whoever lives longer, so long as the management of the lodge remains consistent with the purposes of the Admiralty Island National Monument.
 2. *Humpback Lake Chalet*. The resort special use permit in existence on December 2, 1980, authorized one rental cabin and appurtenant structures on Humpback Lake within Misty Fiords National Monument Wilderness. The continuation of this use is authorized by ANILCA, Section 1307(a). The existing improvements may

be maintained, rehabilitated, modified, replaced or removed, but not enlarged. New cabin construction will not be allowed. Approval of exterior color schemes, materials, and designs shall use criteria that keep the improvements unobtrusive and compatible with the surroundings. The special use permit may be revised as appropriate, but the permittee must remain Sportsman Paradise Tours, the permittee on December 2, 1980. The use shall continue to be permitted so long as it remains a public recreation rental cabin, provides adequate public service, does not significantly threaten any resource, and other terms and conditions of the permit are met.

- G. Allow reasonable access to, operation, and maintenance of existing air and water navigation aids, communication sites, and related facilities, as well as existing facilities for national defense purposes, weather, climate and fisheries research and monitoring. Allow the continuation of necessary motorized access at existing sites (ANILCA Section 1310(a)).
- H. New facilities proposed for these activities and purposes, except communications sites, shall be permitted: 1) following consultation between the head of the Federal agency undertaking the establishment, operation, or maintenance, and the Regional Forester; and 2) in accordance with such terms and conditions as may be mutually agreed upon in order to minimize the adverse effects of such activities on the Monument Wilderness resources.
 - 1. Conduct environmental analysis to evaluate the effects of such proposals on Monument Wilderness resources and to provide the basis for determining the necessary terms and conditions under which the use will be permitted.
 - 2. Mechanized transport and motorized equipment may be authorized where no other feasible alternative exists.
 - 3. Forest Supervisors will consult with the permittees and jointly develop Operating Plans, documenting procedures which will minimize impacts on the Monument Wilderness resources without unreasonably limiting the operation and maintenance of the proposed facilities.
- I. This Land Use Designation represents a Transportation and Utility System (TUS) "Avoidance Area." Transportation and utility sites and corridors may be located within this Land Use Designation only after an analysis of potential TUS opportunities has been completed and no feasible alternatives exist outside this LUD.
- J. Onshore facilities such as waterlines, storage areas, and shoreties for mariculture shall not be permitted in Wilderness.

Landline Location and Maintenance: LAND231, LAND24

- A. Provide adequate marking for the public and Forest Service employees to distinguish land ownership.
 - 1. Survey, mark, and post property lines of inholdings and adjacent private lands. Give highest priority to those landlines adjacent to the private lands where activities or occupancies are likely to encroach into the Wilderness. The next priority is landlines adjacent to trails, canoe routes, and other wilderness transportation corridors or areas of frequent human use.

- B. Provide adequate marking of Monument Wilderness boundaries to prevent encroachment of non-compatible activities from adjacent public lands.
- C. Determine survey, marking, and posting priorities by the degree to which adjacent land management is compatible with the Monument Wilderness classified lands.

Land Ownership Adjustments: LAND26

- A. Acquire private inholdings as opportunities arise.
 - 1. Acquisition of private inholdings within the Monument Wilderness is a continuing high priority.
 - 2. As opportunities permit, acquire private inholdings through donation, exchange, or purchase.

**MINERALS
GEOLOGY**

Minerals and Geology Administration: MG12

Forest Lands Withdrawn from Mineral Entry

- A. Forest lands within the Monument Wildernesses are withdrawn from mineral entry, subject to valid existing rights.
- B. Claimants with valid claims located within the Monument Wilderness retain valid existing rights if such rights were established prior to the date that Monument Wilderness lands with withdrawn from mineral entry.
- C. Permit reasonable access to mining claims in accordance with the provisions of approved Plans of Operation (ANILCA Section 1110(b)).
- D. Section 1010 of ANILCA provides for the assessment of oil, gas, and other mineral potential on all public lands in Alaska. Core and test drilling for geologic information purposes, but excluding exploratory oil and gas test wells, may be authorized within Monument Wilderness. Air access shall be permitted for such assessment activities.
- E. Section 503, 504, and 505 of ANILCA provide specific direction for minerals management in the National Monument.

Plan of Operations

- A. Encourage use of state-of-the-art techniques for developing minerals to reduce impacts to wilderness values to the extent feasible. Include mitigation measures that are compatible with the sale of proposed development and commensurate with potential resource impacts.
- B. The use of motorized equipment may be authorized where no other feasible alternative for access and project operation exist. Apply appropriate Transportation Forest-wide Standards and Guidelines to the location and construction of mining roads (ANILCA, Section 1110(b)).

**RECREATION AND
TOURISM**

Recreation Use Administration: REC122

Recreation Management and Operations

- A. To the degree consistent with the overall purposes of designation, provide a spectrum of wildland recreation opportunities which reflects the inherent ecological, cultural, historical, prehistorical, scientific and sociological conditions found within the Monument Wilderness.
- B. Provide a mix of primitive and semi-primitive ROS settings which emphasize existing opportunities, while recognizing exceptions due

to ANILCA authorizations and development activities outside of wilderness. Provide for the appropriate activities throughout the Monument Wilderness. Protect the integrity of National Monument Wilderness resources through integrated project planning and implementation within the National Monument Wilderness.

1. Provide the existing recreation settings and opportunities unless activities and practices authorized by the Regional Forester cause change in the ROS setting(s). Seek to minimize the changes through project design and mitigation. Manage recreation and tourism use in a manner that is compatible with the long-term objectives of the Monument Wilderness.
 2. In locations where scheduled activities change the recreation setting(s), manage the new setting(s) in accordance with the appropriate ROS guidelines. Seek to minimize changes to the setting through project design and mitigation. Maintain the capability of the Monument Wilderness to provide quality primitive and semi-primitive recreation on a sustained basis.
- C. Manage recreation and tourism use and activities to meet the appropriate levels of social encounters, on-site development, methods of access and visitor impacts indicated for the established ROS settings. (Consult national and regional handbooks.)
- D. Provide for general public use of the National Monument Wilderness in accordance with ANILCA provisions for the use of snowmachines (during periods of adequate snow cover), motorboats, fixed-wing airplanes, and nonmotorized surface transportation methods for traditional activities that are legal and for travel to and from villages and homesites (ANILCA Sec. 1110).
1. Traditional activities include, but are not limited to, recreation activities such as sportfishing, sporthunting, boating, sightseeing and hiking.
 2. Traditional activities, which are legal, shall be allowed to continue where such use has previously occurred. No proof of pre-existing use will be required in order to use a snowmachine, motorboat, or fixed-wing airplane. No permits will be required for the general public to use these specific types of motorized transport or any nonmotorized surface transportation methods for traditional activities that are legal, unless an area is specifically closed to public use. Such use is subject to reasonable regulation by the Regional Forester to protect natural and other values of the wilderness from damage.
 3. Restrictions or closures of specific areas within the wilderness to transportation methods listed in "D" above, may be invoked by the Regional Forester following adequate public notice and public hearing, and the determination that such use would be detrimental to wilderness resource values. Closure of broad areas is not contemplated.
 4. Fixed-wing airplanes will be allowed to land on all suitable lakes, beaches, and icefields without permit unless the activity (i.e., commercial use) requires a permit.
 5. The landing of helicopters by the general public will be limited to specific helicopter access areas designated by the Regional Forester.

- E. Maintain existing public use cabins and shelters at present or improved condition. Consider additional public use cabins and/or shelters only when needed for health and safety purposes (ANILCA, Sec. 1315(d)) and no suitable alternatives exist outside Monument Wilderness.
1. Base new cabin or shelter locations on an analysis of public health and safety needs. The analysis shall include at least the following factors:
 - * Difficulty of access particularly in regard to timely pick-up of users by floatplane or boat or for emergency situations.
 - * Presence of natural hazards including weather, brown bears, and dangerous tide and currents.
 - * History of fatalities and life-threatening incidents in the area.
 - * Natural attractions that entice people to use a particular area.
 2. Design of new or replacement cabins or shelters will use drawings approved for use in Wilderness.
 3. Appurtenant structures to the cabin or shelter will be limited to a toilet, woodshed, and minimum structures necessary for resource protection and accessibility.
 4. All structures shall be built of materials, which blend with, and are compatible with, the foreground and middleground landscape surrounding the site.
 5. Decisions to construct new cabins or relocate or move existing cabins must be supported by an environmental analysis.
 6. The Forest Supervisor will report any proposed public use cabin or shelter removal or additions in the Annual Wilderness Report for notification of the appropriate congressional committees (ANILCA Sec. 1315(d)).
- F. With the help of user groups, develop "Leave No Trace" camping and use programs that encourage dispersal and use of durable campsites. Where dispersal is not feasible, develop designated campsites and encourage their use.

Outfitter/Guide Operations

- A. Special-use authorizations permitting individuals or organizations to provide visitor services in Monument Wilderness may be issued if there is demonstrated need for the service(s) and they are deemed appropriate for the area proposed. District Rangers will maintain a record of currently active authorizations.
1. In selecting persons to provide new visitor services, except for guided hunting and sport fishing, preference shall be given: 1) to the Native Corporation which is most directly affected by the establishment of the subject Wilderness, and 2) to local residents as will be defined by the Secretary of Agriculture (ANILCA, Section 1307).
 2. Outfitter and Guide permit holders may be authorized the use of assigned temporary campsites for specific dates within a use season. Assigned campsites shall not include structures such as tent platforms or equipment caches (except as in 3. below).
 3. Outfitter and Guide services for the taking of fish and wildlife may be allowed certain temporary camp facilities by ANILCA, Section 1316. (See Lands Section.)

4. Generally consider a party size of no more than 12 persons for any one site or activity, allowing for case-by-case exceptions with ranger approval, for special circumstances such as safety concerns, youth groups, one time only guided tours, and resource protection.

Recreation Special Uses

- A. Major and minor developments other than those specifically provided for in ANILCA are illegal or not consistent with agency policy and regulations. Refer to the Recreation and Tourism Forest-wide Standards and Guidelines.

SCENERY

Scenery Operations: VIS1

- A. Activities are designed to not be visually evident to the casual observer.
 1. Apply Forest-wide Standards & Guidelines for the Retention Visual Quality Objective. This objective defines the maximum limit of allowable change to the visual character of the area; less visible evidence of activities, such as those compatible with the Preservation VQO, is acceptable.
 2. Design allowed structures, campsites and constructed trails to meet the Partial Retention Visual Quality Objective.

SOIL AND WATER

Watershed Resource Improvements: S&W2

- A. Undertake watershed improvements only where deteriorated soil and hydrologic conditions caused by humans or their influences create a threat or loss of Monument Wilderness values or where such conditions could cause serious depreciation of important environmental qualities outside of the Monument Wilderness. For exceptions, see the Fish section.
- B. Whenever possible, use indigenous plant species and materials in implementing watershed improvements.

SUBSISTENCE

Subsistence: SUB

- A. Rural residents engaged in subsistence uses shall have reasonable access to subsistence resources. Appropriate use of snowmachines, motorboats, and other methods of surface transportation traditionally employed for such purposes by local residents shall be permitted, subject to reasonable regulation to protect Monument Wilderness resource values (ANILCA, Section 811). The use of other mechanical/motorized equipment, such as chainsaws, is allowed by permit only.
- B. Allow subsistence wood gathering activities in Monument Wilderness (primarily firewood and trolling poles) subject to reasonable regulations to protect wilderness resources. Cutting of green trees will be by permit and only if there is not a suitable source equally accessible outside the Monument Wilderness.

TIMBER

Timber Resource Planning: TIM112

- A. Forested land is classified as unsuitable for timber production and withdrawn from the timber base.

- B. The following types of uses may be authorized if accomplished in a manner that minimizes impacts on the Monument Wilderness:
- * Beach log recovery on Monument Wilderness coastlines is authorized by ANILCA. Permits will require that the recovery of logs above high tide be conducted from water without roads or use of vehicles on uplands.
 - * Removal, or use of trees cut as part of some other authorized use within the Monument Wilderness. For example, clearing for a fish ladder.
 - * Cutting of trolling poles on an emergency basis by fishermen using adjacent waters. Permits for this use are not required.
 - * Trees may be cut for use in construction and maintenance of authorized structures when it is not feasible to obtain the necessary material from outside the Monument Wilderness.
 - * Taking of personal use wood will be limited to beachlogs on coastlines which can be removed without roads use of vehicles on uplands. The cutting of down trees in rivers and removal of trees from the banks is not compatible with wilderness management objectives.

TRAILS

Trail Activities: TRAI1

- A. Provide for a diversity of outdoor recreation trail and waterway opportunities which are appropriate for the ROS class and management intent of the Monument Wilderness. Emphasize nonmotorized and nonmechanized participation in activities such as hiking, mountaineering, spelunking, cross-country skiing, canoeing, and kayaking.
- B. Emphasize opportunities in primitive and semi-primitive opportunities which are in harmony with the natural environment and consistent with the intent and purposes of the Wilderness Act and ANILCA.
- C. Consider trail systems that provide:
 - 1. Connected, multi-day trip opportunities for both land trails and water trails.
 - 2. Alpine trail systems with quick access from saltwater anchorages, cabins, local communities, and resorts.
 - 3. Loop trail systems in connection with recreation cabins.
 - 4. Access from local communities to snowline where development of snowtrails is feasible.

Trail Administration: TRAI2

- A. Trails and associated waterways leading to and within Monument Wilderness often become the principal management tools for achieving management objectives. Construct and maintain trails and related facilities, such as bridges and signs, so they:
 - 1. contribute to management goals and objectives.
 - 2. are compatible with the ROS setting.
 - 3. appear to be part of the Monument Wilderness environment and not an intrusion upon it. Consult the Forest Service Trails Management Handbook, and Alaska Region Trails Construction and Maintenance Guide.

TRANSPORTATION Transportation Operations: TRAN1

- A. New roads and new airstrips are not permitted, except to access surrounded state and private land and valid mining claims. Any transportation development in association with minerals extraction will be in accordance with an approved Plan of Operations, and subsequent annual work plans.
- B. Roads in this Land Use Designation are closed to public use.
- C. Use of snowmachines, motorboats, fixed-wing airplanes and non-motorized methods of surface transportation is permitted for traditional activities that are legal for transportation to and from villages and homesites (ANILCA, Section 1110).
- D. Provide adequate and feasible access for economic and other purposes to owners of land, including subsurface rights to land, valid mining claims, or other valid occupancies, which are effectively surrounded by Monument Wilderness.
 - 1. The routes and types of access shall be practical in an economic sense; but do not necessarily have to be the most economically feasible alternative.
 - 2. District Rangers will work with the landowner, or his/her authorized representative, to work out reasonable solutions which will meet the intent of ANILCA (Sec. 1110(b) and 1323), while minimizing adverse impacts on Monument Wilderness resources and values.

WILDERNESS

Wilderness Resource Administration: WLNS12

Wilderness Resource Management

- A. Manage all designated National Monument Wilderness to maintain an enduring wilderness resource as provided by the Wilderness Act of 1964, while providing for public access and uses specifically allowed by the Alaska National Interest Lands Conservation Act (ANILCA) of 1980 (P.L. 96-487). Consult Alaska Region Supplement to FSM 2320, as amended. Activities and practices authorized by ANILCA will be regulated or restricted in accordance with the special provisions of ANILCA.
- B. Use available opportunities to encourage and enlist public and private sector interest groups to work together in meeting wilderness management objectives. Emphasize programs which help in educating the using public in the appropriate conduct of activities and uses within National Monument Wildernesses (for example, "Leave No Trace.").
- C. To the extent feasible, the Forest Service will minimize the impacts of administrative activities on the National Monument Wilderness resources and visitors. Administrative activities include authorized use and wilderness resource related work being done by other agencies and cooperators. In developing project plans use the following guidelines:
 - 1. Encourage permit holders and cooperators to minimize the use of mechanized vehicles and equipment to make their presence in the Wilderness as unobtrusive as possible even though authorized.

2. The use of motorized vehicles and equipment by the Forest Service and other agencies for the administration of the Wilderness is subject to the following conditions:

* *Aircraft:*

- Fixed-wing airplanes may land on all suitable lakes, beaches, and icefields.
- The administrative use of helicopters on a case-by-case analysis of need and full consideration of all alternative options for access.
- Established air routes will be used to the extent feasible.
- Low flights and continuous circling should be avoided.
- Work logistics will be planned to minimize the number of aircraft flights over the wilderness and landings within a specific area.

* *Motorboats on Rivers:*

- Motorboats may be used on rivers for all administrative purposes under the same conditions that public use is allowed.

* *Motorboats on Freshwater Lakes:*

- Outboard motors of 10 horsepower or less may be used for administering the Wilderness, gathering firewood for public use cabins, and transporting crews and equipment on lakes specified by the District Ranger.

* *Chainsaws and Power Brushers:*

- Use of chainsaws and power brushers is allowed for trail and cabin maintenance and firewood cutting when authorized by the Forest Supervisor.
- Use of chainsaws and power brushers is allowed for trail construction and reconstruction projects when specifically authorized in writing by the Forest Supervisor.

* *Generators and Other Motorized Tools:*

- Generators and other motorized tools may be used for construction/reconstruction projects only when use has been specifically authorized in writing by the Regional Forester. They may not be used for normal maintenance work or in field camps except where specifically authorized by the Forest Supervisor.

* *Snowmachines:*

- May be used to administer Wilderness under the same snow conditions that public use is allowed.

* *Exceptions:*

- Aircraft and mechanized equipment may be used as needed for search and rescue purposes.
- The temporary use of motorized equipment may be authorized for fisheries research, management, rehabilitation, and improvement activities, when such use is

authorized in the project environmental assessment or Decision Notice approved by the Forest Supervisor or, the case of permanent facilities, the Regional Forester.

All other administrative activities must be completed using primitive non-motorized/nonmechanized methods unless specifically authorized by the Regional Forester in the project environmental assessment or Decision Notice.

Wilderness Planning

- A. Wilderness Implementation Schedules (WIS) will be developed by the areas for each Monument Wilderness. Direction from this plan will be incorporated into the WIS. Additional direction may be developed for an individual Wilderness in response to issues and concerns. If the direction is beyond the intent of these standards and guidelines, yet consistent with ANILCA and the Wilderness Act, it may require an amendment to this plan. Direction in previously approved Wilderness plans which is consistent with this plan, may be incorporated as part of the WIS. The WIS may be updated as needed.
- B. Establish sub-unit management zones within the Monument Wilderness to deal with unique situations, or to integrate local issues and concerns with management activities, where necessary, to better accomplish Monument Wilderness objectives, as identified in the WIS.
 - 1. The boundaries of sub-units should generally be located on identifiable topographic features and/or coincide with existing Recreation Opportunity Spectrum (ROS) classification areas.
 - 2. Establishment of sub-zones may result in a NEPA analysis depending upon the magnitude of, and need for change.

WILDLIFE

Wildlife Habitat Improvement: WILD22

- A. Conduct wildlife habitat projects only when the principal objective is to protect or restore the Monument Wilderness resource, or to assist in the recovery of a federally-listed threatened or endangered species.

Wildlife Habitat Planning: WILD112

- A. Wildlife management activities will be consistent with wilderness objectives, and will protect and maintain natural processes and wilderness values.
- B. Reintroduce wildlife species only if the species was once indigenous to an area and was extirpated by human-induced events. Transplants, removal or reintroduction, may be permitted, if necessary: (a) to perpetuate or recover a threatened or endangered species; or (b) to restore the population of an indigenous species eliminated or reduced by human influence. Management activities will be conducted in a manner compatible with the wilderness environment.
 - 1. Work with the Alaska Department of Fish and Game to manage existing populations of non-indigenous species to prohibit their dispersal into wilderness.
 - 2. Non-indigenous species are incompatible with wilderness values. Non-indigenous species introduced into wilderness areas prior

to designation may be allowed to remain. No further introductions will be allowed, either to supplement existing populations or to replace failed introductions.

NONWILDERNESS NATIONAL MONUMENTS

Land Use Designation NM

Both National Monuments contain Congressionally-designated Wilderness and nonwilderness National Forest Lands. Management direction for Wilderness portions is provided in Wilderness National Monuments Land Use Designation.

Goals

To facilitate the development of significant mineral resources located within portions of Admiralty Island and Misty Fiords National Monuments, as specified by the Alaska National Interest Lands Conservation Act (ANILCA).

To protect objects of ecological, cultural, geological, historical, prehistorical, and scientific interest, as specified by ANILCA, and in Plans of Operation, and to minimize effects on non-mineral resources to the extent feasible. In the long-term, when mining is completed, to reclaim areas disturbed by mining to a near-natural condition.

To limit mining activities to claims with valid existing rights, and to the land area actually needed to carry out mining operations.

Objectives

Ensure that Plans of Operations for each mineral development specify the activities to be conducted, the location and timing of those activities, and how the environment and resources in each area will be protected through compliance with Federal and state requirements.

In areas affected by mining, manage activities to maintain the productivity of anadromous fish and other foodfish habitat to the maximum extent feasible. Stress protection of fish habitat to prevent the need for mitigation.

In areas affected by mining, manage public recreation use as directed in the Plans of Operation. Outside these areas, manage recreation use and activities to meet the appropriate levels of social encounters, on-site developments, methods of access, and visitor impacts indicated for the established recreation opportunity spectrum.

Locate and manage trails to direct the public away from mining operations.

Develop rehabilitation plans following project completion. Include, as needed, rehabilitation of fish and wildlife habitats, soil resources, and the scenery as seen from identified Visual Priority Travel Routes and Use Areas (See Appendix F).

Desired Future Condition

During mining operations, mining activities are localized and limited to the area necessary for their efficient and orderly development. Off-site effects to National Monument resources are minimal, and most Monument users are not aware of, or affected by, the mines. After the completion of mining, rehabilitation of the affected areas is done to minimize the evidence of past mining and to the maximum extent feasible, seek to return the area to generally natural conditions. Ultimately, the entire Nonwilderness National Monument provides the same natural settings and recreation experiences as the adjacent Wilderness National Monument areas.

At-a-Glance . . .

Facilities	Structures consist of those needed and authorized for the extraction of mineral deposits, those facilities needed for specially authorized activities, and those needed for the protection of National Monument values.
Fire	All wildfires are suppressed using a suppression action that minimizes fire suppression costs and resource damage. Prescribed fire, to enhance natural ecological processes, is not presently used in this LUD.
Fish	Where affected by mining activities, fish habitats are maintained to the maximum extent feasible. Fish habitat improvement projects to meet the objectives of the Regional Comprehensive Salmon Plan and designed and maintained in a manner that minimizes adverse effects on monument values.
Forest Health	Natural occurrences of insects and diseases are allowed to play their normal roles in the ecosystem succession. Scientific study of natural populations is encouraged using research methods appropriate to the National Monument setting and goals.
Heritage Resources	Scientific study of heritage resources is encouraged and interpretation is provided to visitors.
Lands	Special uses and structures needed to facilitate mineral operations may be present. Valid mining claims may be patented.
Minerals	Mineral activity is limited to claims on which valid existing rights have been established or leases issued under ANILCA provisions (sections 503 and 504). The remainder of the designated National Monument is withdrawn from mineral entry. Congressionally-ratified land exchanges may expand areas open to mineral entry.
Recreation/Tourism	To the degree consistent with the presence of the mining activity and the health and safety of National Monument visitors, a spectrum of wildland recreation opportunities is provided that reflects the inherent ecological, historical, and sociological conditions found within the National Monuments' nonwilderness areas.
Scenery	Permitted structures blend with the natural landscape to the extent feasible. Authorized activities and facilities are located and designed to minimize their visual impact when viewed from other areas within the National Monument.
Soil and Water	Emphasis is to maintain water quality, soil cover, minimize slope failure, and reduce the degree of risk from the potential effects of mass wasting and other development activities associated with management activities.
Subsistence	Activities occur in accordance with Federal and state regulations and may be seasonally prevalent in some areas.
Timber	Activities are limited to subsistence use, beach log recovery, and administrative use related to the development and operation of the mining activities. Commercial timber harvest and sale is prohibited. Disposal of timber cleared

for access and facility development is handled through settlement sales. Taking of personal use wood is limited to beach logs on coastlines that can be removed without roads or use of vehicles on uplands. The cutting of down trees in rivers (sweepers) and removal of trees from the banks is not compatible with this Land Use Designation. Traditional subsistence wood-gathering activities are allowed.

Transportation

Roads are permitted only for mining-related purposes within the National Monument, access to non-Federal lands, when appropriate, and for transportation and utility corridors under ANILCA, Title XI. Roads in this LUD are closed to the public unless opened by a mining operator. Public transportation facilities outside the active mining area consist of only a few miles of constructed trails. Travel is essentially nonmechanized except for authorized traditional motorized recreation access, authorized resource management projects, emergency situations, and subsistence uses.

Wildlife

Human use of wildlife habitat is assessed and actions taken to prevent the degradation of wildlife species in National Monument. Scientific study of indigenous species and their habitats is encouraged with emphasis on identifying their roles in ecosystem dynamics and impacts of human uses.

Apply the following Forest-wide Standards & Guidelines located in Chapter 4:

RESOURCE	SECTION	SUB-SECTIONS	PAGE
AIR	AIR	All	4-2
BEACH AND ESTUARY FRINGE	BEACH1 BEACH2	All I,II(A-G,L)	4-3
BIODIVERSITY	BIO	I(A:1-5;11-14)	4-7
FACILITIES	FAC	All	4-9
FIRE	FIRE	All	4-10
FISH	FISH	All	4-12
FOREST HEALTH	HEALTH	All	4-18
HERITAGE RESOURCES	HER	All	4-19
KARST AND CAVE RESOURCES	KARST,CAVE	All	4-23
LANDS	LAND	All	4-26
LAW ENFORCEMENT	LAW	All	4-39
MINERALS AND GEOLOGY	MG11 MG12	All I;III-VII	4-40
RECREATION AND TOURISM	REC111 REC112 REC122	All I-III I-III,V-VII	4-42
RIPARIAN	RIP1,RIP2 RIP3	All I,II(A-E)	4-61
RURAL DEVELOPMENT	RUR	All	4-80
SCENERY	VIS	All	4-81
SOIL AND WATER	S&W	All	4-89
SUBSISTENCE	SUB	All	4-93
THREATENED, ENDANGERED, SENSITIVE	TE&S	All	4-95
TIMBER	TIM111,111-1 TIM114	All VIII(D)	4-101
TRAILS	TRAI1 TRAI2	I(A-E;F:1,3,5) All	4-112
TRANSPORTATION	TRAN	None	4-115
WETLANDS	WET	All	4-123
WILDLIFE	WILD112 WILD22 WILD23	I,II;IV-XIII;XIV(A:1-3) I(A:1;B) All	4-124

Apply the following Land Use Designation Standards & Guidelines:

FACILITIES

Facilities Improvements: FAC2

- A. Allow structures needed and authorized for the extraction of mineral deposits, specially authorized activities, and for protection of National Monument values.

FIRE

Fire Suppression: FIRE12

Suppression Action

- A. All wildfires will be suppressed using the suppression option identified in the Southeast Alaska/Prince William Sound Fire Management Plan. An Escaped Fire Situation Analysis (EFSA) of expected fire behavior, time of year, and locations with respect to private land and adjacent land use areas, may lead to a lower strategy. If an EFSA discloses no adverse effects and it is more cost-efficient, the lower strategy will be used.
- B. Suppression tactics will emphasize the least possible disturbance or evidence of human presence.
 - 1. Use of mechanized equipment will require Forest Supervisor.
 - 2. Suppression tactics will avoid human/bear conflicts and existing policy will be emphasized to leave no trash or any other kinds of bear attractants in the area.
 - 3. Rehabilitation of all campsites, suppression lines, and other evidence of human presence will occur as soon as it is safe, but within one year after the fire occurs.

Fuel Improvements: FIRE2

Prescribed fire

- A. As a general management practice, management-ignited prescribed fire will not be used in this Land Use Designation. Should it become necessary to consider the use of management-ignited prescribed fire, consult FSM 2324.
- B. Outside the active mining area, prescribed fire may only be used to perpetuate the natural ecological process. As a general management practice, prescribed natural fire will not be used in this Land Use Designation. Should it become necessary to consider the use of prescribed natural fire, the Forest Plan must be amended to analyze, justify, and approve prescribed natural fire programs. (Consult FSM 5142).

FISH

Fish Habitat Planning: FISH112

Planning and Mitigation

- A. In areas affected by mining, manage activities to maintain the present and continued productivity of anadromous fish and other foodfish habitat to the maximum extent feasible. (Consult ANILCA Section 505 (a).)
- B. Stress protection of fish habitat to prevent the need for mitigation. Mitigation, rehabilitation, and monitoring of mining impacts to fish habitat or populations shall be identified in appropriate environmental

documents, Plans of Operation, and updates and amendments to each. Stocking of sport fish will generally be employed only to reestablish indigenous stock depleted by human influences. Stocking of indigenous species in currently barren waters may be considered, where appropriate, to the purposes of National Monument management.

- C. Mining impacts to fish habitat shall be mitigated by the mining operator. (Consult ANILCA Section 505 (b) for Quartz Hill.)

Planning Fish Enhancement

- A. Provide for fisheries habitat enhancement subject to the goal of restoring and maintaining fish production in the State of Alaska (Consult sections 507 and 1315(b) of ANILCA, and the Regional Comprehensive Salmon Plans). Consider the suitability of fish habitat enhancement, during project planning, by evaluating: 1) availability of suitable non-Monument, non-wilderness opportunities; 2) effects on Monument conditions in general; 3) effects on Monument ecosystems and desired solitude level due to an enhanced fishery resulting in increased recreation use; 4) effects on ecosystems due to the introduction of species not indigenous to the watershed; and, 5) the appropriateness of structures both in type and scale to the Recreation Opportunity Spectrum Class (ROS) setting.

Fish Habitat Improvement: FISH22

- A. Use construction techniques which are consistent with Monument management.
 - 1. Developments shall involve those facilities essential to operations and shall be constructed in such rustic manner to blend into the natural character of the area. (Consult ANILCA Section 1315 (b).)
 - 2. Land-disturbing activities necessary for construction will be temporary.

FOREST HEALTH

Forest Health Management: HEALTH1

- A. Natural occurrences are allowed to play their normal role in ecosystem succession.
- B. Scientific study of natural populations is encouraged using research methods appropriate for the National Monument setting and goals.

Forest Insect and Disease Survey and Inventory: HEALTH2

- A. Survey and inventory visible outbreaks.

HERITAGE

Heritage Resource Activities: HER

Inventory

- A. Activities which have the potential to affect heritage resources shall be in compliance with the National Historic Preservation Act, Section 106, 110.
- B. Inventory valid, existing mineral claims prior to the approval of a Plan of Operations for mineral activities.
- C. Inventory and evaluation may be done at the operator's discretion and cost; provided that the inventory and evaluation is accomplished

under the supervision of a qualified heritage resource specialist and authorized by a special use authorization.

- D. Include as part of the Plan of Operations specific protective and/or mitigative measures to be taken by the operator who is responsible for the cost of any such protective or mitigative measures.

Enhancement

- A. Heritage resources are available for recreational, scenic, scientific, educational, conservation, and historic uses.
 - 1. Provide for the scientific study and interpretation of heritage resources to visitors.

KARST AND CAVES Cave Management Program: CAVE

- A. Identify opportunities for interpretation of caves for public education and enjoyment. Interpretation will generally occur outside this LUD.
- B. Manage caves as Class 1 (Sensitive) or Class 3 (Undeveloped) as described in the Karst and Cave Resources Forest-wide Standards and Guidelines.

LANDS

Special Use Administration (Non-Recreation): LAND122

- A. Authorize special uses to facilitate mineral-related activities. Authorize other uses if they do not substantially conflict with mineral-related activities.
 - 1. Authorizations must be compatible with the purposes for which the area was established, subject to exceptions provided by the Alaska National Interest Lands Conservation Act (ANILCA).

Landline Location and Maintenance: LAND23, LAND24

- A. Provide adequate marking for the public and Forest Service employees to distinguish land ownership and land classification.
 - 1. Survey, mark, and post property lines to Wilderness or National Monument standards along trails, canoe routes, and other transportation corridors or areas of frequent human use.
 - 2. Determine survey, marking, and posting priorities, by the degree to which the adjacent LUD is compatible with the National Monument management objectives.

Land Ownership Adjustments: LAND26

- A. Allow and assist in the process for valid mining claims embracing locatable commodities to go to patent, subject to the requirements of ANILCA.
- B. This Land Use Designation represents a Transportation and Utility System (TUS) "Avoidance Area." Transportation and Utility sites and corridors may be located within this Land Use Designation only after an analysis of potential TUS corridors has been completed and no feasible alternatives exist outside the LUD.

MINERALS GEOLOGY

Minerals and Geology Resource Preparation: MG11

Resource Preparation

- A. Prepare geologic, paleontologic, and historic mining interpretations where appropriate.

Minerals and Geology Administration: MG12

Lands Withdrawn from Mineral Entry

- A. National Forest System lands within this Land Use Designation are withdrawn from additional mineral entry (ANILCA, Section 503).
- B. Claimants with valid claims located in areas withdrawn from mineral entry retain valid existing rights if such rights are established prior to the date the area was withdrawn from mineral entry.
- C. Permit reasonable access to mining claims in accordance with the provisions of an approved Plan of Operations.

Plan of Operations

- A. The plans of operation for the Greens Creek and Quartz Hill projects describe the activities which will be conducted, the location and timing of those activities, and how the environment and resources in each area will be protected through compliance with federal and state requirements. (Consult ANILCA Sec. 503 and 504.)
- B. Issue leases and other necessary associated permits in accordance with ANILCA Sec. 503 and 504.
- C. In areas affected by mining, manage activities to maintain the present and continued productivity of anadromous fish and other foodfish habitat to the maximum extent feasible. (Consult ANILCA Section 505(a).)

RECREATION AND TOURISM

Recreation Use Administration: REC122

Recreation Management and Operations

- A. To the degree consistent with the overall purposes of National Monument management, provide a spectrum of wildland recreation opportunities which reflect the existing ecological, historical, and sociological conditions found within the Monument.
- B. Continue to provide for established ROS opportunities and appropriate activities throughout LUD unless specifically closed to public use. Protect the integrity of National Monument resources through integrated project planning and implementation within the National Monument.
 1. Provide the existing recreation settings and opportunities unless scheduled activities and practices cause a change in the ROS setting(s). Manage recreation use in a manner that is compatible with the long-term objectives of the Monument.
 2. In locations where scheduled activities change the recreation setting(s), manage the new setting(s) in accordance with the appropriate ROS guidelines. Maintain the capability of the National Monument to provide appropriate quality recreation opportunities on a sustained basis.
- C. Manage and regulate public recreation use within this Land Use Designation area in accordance with direction contained in the Plans of Operations for the respective mining operations. Outside the area covered by the Plans of Operations manage recreation use and

activities to meet the appropriate levels of social encounters, on-site development, methods of access, and visitor impacts indicated for the established ROS settings. (Consult National and Regional Handbooks.)

- D. Consider additional public use cabins and/or shelters when needed to meet recreation demand within the National Monument.
- E. With the help of user groups, develop "no trace" camping and use programs to encourage the dispersal and use of durable campsites. Where dispersal is not feasible, develop designated campsites and encourage their use.

Establishment of Sub-unit Management Zones

- A. Where necessary to better accomplish non-Wilderness National Monument management objectives, establish special management zones within the Monument to deal with unique situations, or to integrate local issues and concerns with management activities.
 - 1. The boundaries of subunits should generally be located on identifiable topographic features and/or coincide with an established recreation opportunity classification (ROS) area.

Recreation Special Uses

- A. Major developments are generally not consistent with the objectives of this Land Use Designation. Development proposals require scrutiny for the magnitude and scope of conformance. Refer to the Recreation and Tourism Forest-wide Standards and Guidelines.
- B. Minor developments may be compatible with the LUD objectives depending on the scope, purpose, and magnitude of the proposal. Proposals will be evaluated on a case-by-case basis. Refer to the Recreation and Tourism Forest-wide Standards and Guidelines.

SCENERY

Scenery Operations: VIS1

- A. Manage the visual resource to be compatible with non-Wilderness Monument objectives.
 - 1. Adopted Visual Quality Objectives (VQO) will range from Retention, in those portions of the Monument without access, to Maximum Modification in those portions developed in connection with mineral activities. Site-specific VQO's and rehabilitation objectives will be identified in specific Plans of Operation for mineral operations.

SUBSISTENCE

Subsistence: SUB

- A. Traditional subsistence wood gathering activities (primarily firewood and trolling poles) will be allowed in National Monuments, subject to reasonable regulations to protect Monument resources. Cutting of green trees will be by permit only. (Consult 36 CFR 225.10.) There will be no restrictions on cutting dead or down trees for subsistence use unless monitoring indicates such activity in a given area is detrimental to Monument resources.
- B. Assess the effect of continued existing subsistence uses on the long-term condition and natural succession of National Monument ecosystems.

TIMBER

Timber Resource Planning: TIM112

- A. Commercial timber sales and harvesting are prohibited in the National Monument. Forested land is classified as unsuitable for timber production and withdrawn from the timber base. Any timber removal associated with mineral access and facility development is nonchargeable to the Allowable Sale Quantity.
- B. Taking of personal use wood will be limited to beach logs on coastlines which can be removed without roads or use of vehicles on uplands. The cutting of down trees in navigable rivers (sweepers) and removal of trees from the banks is not compatible with this Land Use Designation.

Timber Resource Improvements: TIM2

- A. Rehabilitation, including reforestation, will be a function of mineral development and not a timber management objective.

TRAILS

Trail Administration: TRAI2

- A. During the period of mining development and operation, plan and locate trails within this Land Use Designation to direct the public away from mining operations. Construct and maintain trails and related facilities so that they contribute to desired conditions and appear to be an appropriate part of the Monument environment and not an intrusion upon it. (Consult the Forest Service Trails Management Handbook.)

TRANSPORTATION

Transportation Operations: TRAN1

- A. New roads are not permitted, except for the following purposes: 1) to access valid mining claims and state or private lands not otherwise reasonably accessible; 2) for Transportation and Utility Corridors in accordance with ANILCA, Title XI.
- B. Further development of transportation systems in association with minerals extraction will be in accordance with an approved Plan of Operations, and subsequent annual work plans.
- C. Roads in this Land Use Designation are closed to public use, unless opened by the mining operator.
- D. Use of snowmachines, motorboats, aircraft and non-motorized methods of surface transportation are permitted.

WILDLIFE

Wildlife Habitat Planning: WILD112

- A. Mitigation, rehabilitation and monitoring of mining impacts to wildlife habitats or populations shall be identified in environmental documents, Plans of Operations, and updates and amendments to each.

Wildlife Habitat Improvement: WILD22

- A. Wildlife habitat improvements must have as their principal objective the protection or restoration of the National Monument resources.
- B. Scientific study of indigenous species and their habitats is encouraged with emphasis on identifying their roles in ecosystem dynamics and impacts of human uses.

- C. Non-indigenous species are incompatible with Monument values. Non-indigenous species will be introduced into other areas only if it is certain that they will not invade adjacent or nearby Monument or Wilderness areas, thus disturbing their natural ecosystems. Management of existing populations of non-indigenous species will prohibit or limit their dispersal into the Monuments or Wilderness to ensure the maintenance of natural processes and ecosystems in Monuments and Wilderness.

RESEARCH NATURAL AREA

Land Use Designation RA

Allocation of new sites to this Land Use Designation in the Forest Plan is not sufficient to establish it as a Research Natural Area (RNA). Establishment requires preparation of an Establishment Report which is forwarded to the Regional Forester and PNW Station Director for approval. The management emphasis of the proposed RNA is to maintain and protect the natural conditions which qualify the area for research natural area status. The RNA's established prior to 1993 will be managed using this prescription following Forest Plan approval. Research Natural Areas in conjunction with Wildernesses, National Monuments, Special Interest Areas, and designated LUD II areas can be used to fulfill various cell needs for research and monitoring purposes.

Goals

To preserve areas of ecological importance in their natural condition for the purposes of research, monitoring, education, and/or to maintain natural diversity.

To allow natural physical and biological processes to prevail without human intervention.

Objectives

Provide opportunities for baseline monitoring of ecological processes and non-manipulative research and observation.

Maintain the natural, undisturbed character of each area by

- *permitting no permanent facilities, and no roads or trails except for research purposes or as otherwise provided by law
- *recommending withdrawal of the area from mineral entry when necessary, subject to valid existing rights
- *limiting recreation uses to those that do not affect or alter natural biological processes
- *allowing vegetative manipulation, fish enhancements, wildlife improvements, and/or soil and water improvements only if they will provide a closer approximation of natural conditions than would be possible otherwise

Desired Future Condition

All Research Natural Areas on the Tongass National Forest are characterized by essentially unmodified environments in which natural ecological processes prevail. They remain undisturbed by human uses or activities, and provide quality opportunities for non-manipulative scientific research, observation and study. The RNA network is representative of the predominant vegetation types, wildlife habitats, and aquatic communities of the Tongass. The "National Hierarchical Framework of Ecological Units" is used to identify sites to be represented in the RNA network. Research Natural Areas are used as monitoring reference areas to evaluate other lands where management activities are undertaken to assess the effectiveness of various standards, guidelines, and mitigation measures in reducing or preventing adverse environmental effects.

At-a-Glance . . .

Facilities

No buildings are permitted. Temporary facilities may be allowed if approved by the Director of the Pacific Northwest Research Station (PNW Station Director).

Fire	Human-ignited fires that endanger RNA's are generally extinguished as quickly as possible, whereas natural fires are generally not suppressed. Prescribed fire may be used only if the land manager is certain that it will provide a closer approximation of natural vegetation than would be possible otherwise.
Fish	Enhancement of fish habitat is allowed only if the land manager is certain that it will provide a closer approximation of natural conditions than would be possible otherwise.
Forest Health	Insect and disease management measures may be implemented only if the Regional Forester and PNW Station Director deem such action necessary to protect the features for which the RNA was established or proposed, or to protect adjacent resources.
Heritage Resources	Locate, evaluate and protect significant heritage resources. Interpretation may be provided if it can be done while maintaining unmodified natural conditions and processes.
Lands	Only special uses which will preserve the RNA in an unmodified condition or those which serve research or monitoring purposes are allowed.
Minerals	Designated RNA's may be withdrawn from mineral entry, subject to valid existing rights.
Recreation/Tourism	Recreation management allows only recreation settings and levels of recreation use which do not threaten or interfere with the objectives or purposes for which the RNA was established or proposed.
Soil and Water	Soil and water resources evolve in natural conditions. Improvement of soil and water resources is allowed only if the land manager is certain that it will provide a closer approximation of natural conditions than would be possible otherwise.
Subsistence	Subsistence activities are allowed to occur which do not compromise or degrade the purposes for which the RNA was established or proposed. Hearings and notices, as required by Section 810 of ANILCA, may be necessary.
Timber	Forested lands are classified as unsuitable for timber production. Vegetation is allowed to evolve under natural conditions. Removal of non-native plants is encouraged where feasible. Personal use fuelwood and Christmas tree cutting activities are prohibited.
Transportation	Unless otherwise provided by law, roads are not located in this LUD unless they contribute to the objectives or protection of the Research Natural Area.
Scenery	Visual character of the area is allowed to evolve naturally; the Visual Quality Objective is Retention.
Wildlife	Wildlife habitats evolve in natural conditions, except that non-native plant and animal life should be removed if feasible. Enhancement of wildlife habitat is allowed only if it will provide a closer approximation of natural conditions than would be possible otherwise.

Apply the following Forest-wide Standards & Guidelines located in Chapter 4:

RESOURCE	SECTION	SUB-SECTIONS	PAGE
AIR	AIR	All	4-2
BEACH AND ESTUARY FRINGE	BEACH	None	4-3
BIODIVERSITY	BIO	I(A:1-5)	4-7
FACILITIES	FAC	None	4-9
FIRE	FIRE	All	4-10
FISH	FISH	All	4-12
FOREST HEALTH	HEALTH	All	4-18
HERITAGE RESOURCES	HER	All	4-19
KARST AND CAVE RESOURCES	KARST CAVE	I-III All	4-23
LANDS	LAND	All	4-26
LAW ENFORCEMENT	LAW	All	4-39
MINERALS AND GEOLOGY	MG11, MG12	All	4-40
RECREATION AND TOURISM	REC111 REC112 REC122	All I(A) I, III, VI, VII	4-42
RIPARIAN	RIP1, RIP2 RIP3	All; I, II(A-E)	4-61
RURAL DEVELOPMENT	RUR	All	4-80
SCENERY	VIS1 VIS11 VIS12	All I, II(A) II, III	4-81
SOIL AND WATER	S&W1111, 1112 S&W112	All I	4-89
SUBSISTENCE	SUB	All	4-93
THREATENED, ENDANGERED, SENSITIVE	TE&S	All	4-95
TIMBER	TIM111-1	All	4-101
TRAILS	TRAI	None	4-112
TRANSPORTATION	TRAN	None	4-115
WETLANDS	WET	II	4-123
WILDLIFE	WILD112	I, II, V, VI(A); VII-VIII; IX(A:1-5); X, XI(A:1); XII(A:2)	4-124

Apply the following Land Use Designation Standards & Guidelines:

FACILITIES

Facilities Improvements: FAC2

- A. No buildings are permitted. (Consult the FSM 4063 for authorizing temporary physical improvements, which requires approval by the PNW Station Director.)

FIRE

Fire Suppression: FIRE12

Suppression Action

- A. As a general guide, extinguish human-ignited fires that endanger Research Natural Areas as quickly as possible, using means that will cause minimal damage to the area. Naturally-ignited fires are generally not suppressed unless they pose a threat to adjacent lands, life and property.

Fuel Improvements: FIRE2

Prescribed fire

- A. Prescribed fire, including those ignited by management as well as natural ignitions, may be used only if the land manager is certain that it will provide a closer approximation of natural vegetation than would be possible otherwise. In addition, prescribed natural fires can be used only if the Forest Plan is first amended to analyze, justify, and approve such a program on a specific RNA. (Consult FSM 5142.)

FISH

Fish Habitat Planning: FISH112

- A. Enhancement of fish habitat is allowed only if it will provide a closer approximation of natural conditions than would be possible otherwise.

FOREST HEALTH

Forest Health Management: HEALTH1

- A. Insect and disease management measures may be implemented only if the Regional Forester and PNW Station Director deem such action necessary to protect the features for which the RNA was established or proposed, or to protect adjacent resources. More specifically: 1) If endemic, then consider no management. 2) If exotic, then consider control. 3) If past insect and disease management activities (e.g.;insect and disease and/or fire suppression) have exacerbated the threat to the RNA, then consider control. 4) If insects and disease in the RNA threaten adjacent lands, then consider control.

Forest Insect and Disease Survey and Inventory: HEALTH2

- A. Survey and inventory visible outbreaks.

HERITAGE

Heritage Resource Activities: HER

- A. Locate, evaluate, and protect significant heritage resources. Interpretation may be provided when it can be done while maintaining unmodified natural conditions and processes.

KARST AND CAVES Cave Management Program: CAVE

- A. Identify opportunities for interpretation of caves for public education and enjoyment. Interpretation will generally occur outside this LUD.
- B. Manage caves as Class 1 (Sensitive) or Class 3 (Undeveloped) as described in the Karst and Cave Resources Forest-wide Standards and Guidelines.

LANDS

Special Use Administration (Non-Recreation): LAND122

- A. Except as otherwise provided by law, allow only those activities which will preserve the RNA in an unmodified condition or those activities which serve research purposes. (Consult FSM 2700 and 4063.)
 - 1. Coordinate all special use proposals with the PNW Station Director, to ensure compatibility with research objectives.
 - 2. Do not authorize activities which modify natural ecological processes.
 - 3. Do not permit roads, fences, or signs in a RNA, unless they contribute to the management objectives or the protection of the area.
 - 4. Do not authorize new buildings and remove existing unauthorized buildings when feasible.
 - 5. Consider authorizing temporary facilities, such as tent platforms, when directly and necessarily related to the taking of fish and wildlife, when approved by the PNW Station Director in consultation with the Forest Supervisor. (See the Lands Forest-wide Standards and Guidelines for additional information.)
 - 6. Only the PNW Station Director, after consultation with the Forest Supervisor, can approve plans for temporary water and atmospheric gauging stations and instrument shelters. Ensure that such plans contain provisions for tenure of the facility, actions to be taken, time limits for completion of actions, and identification of parties responsible for returning disturbed areas to a natural condition.
 - 7. Encourage the use of RNA's by scientists and educators. Refer research applicants to the PNW Station Director, who will approve study plans in consultation with the Forest Supervisor. Upon approval of the study plan, the District Ranger authorizes access to the area.
 - 8. Do not allow road or trail development or special uses of a permanent nature, except for research and education purposes, unless otherwise provided by law.
- B. This Land Use Designation represents a Transportation and Utility System (TUS) "Avoidance Area." Transportation and utility sites and corridors may be located within this Land Use Designation only after an analysis of potential TUS corridors has been completed and no feasible alternatives exist outside this LUD.

Landline Location and Maintenance: LAND23, LAND24

- A. Ensure that the boundaries of RNA's are clearly identifiable in the field and in administrative records.

Land Ownership Adjustments: LAND26

- A. Acquire private inholdings as opportunities arise.

**LAW
ENFORCEMENT**

Law Enforcement Activities: LAW

- A. Where a special closure is necessary to protect a RNA, recommend a closure order under provisions of 36 CFR 261.50. Ensure that such orders incorporate the special closure provisions of 36 CFR 261.53. (Consult FSM 4060.)

**MINERALS
GEOLOGY**

Minerals and Geology Administration: MG12

Mineral Withdrawals

- A. Designated RNA's may be withdrawn from mineral entry, subject to valid existing rights.
- B. Permit reasonable access to mining claims with valid existing rights in accordance with the provisions of an approved Plan of Operations.

**RECREATION AND
TOURISM**

Recreation Use Administration: REC122

- A. Provide only those specific types and intensities of recreation activities and opportunities that can be accommodated without endangering or altering the natural biological processes occurring within the RNA.
- B. Issue appropriate orders regulating public use within the area that are necessary to ensure non-degradation of the natural environments for which the RNA was established or proposed.

Recreation Special Uses

- A. Neither major nor minor developments are allowed because they are incompatible with the objectives of this Land Use Designation. Refer to the Recreation and Tourism Forest-wide Standards and Guidelines.

SCENERY

Scenery Operations: VIS1

- A. Allow the visual character of the area to evolve naturally.
 - 1. Apply Forest-wide Standards and Guidelines for the Retention Visual Quality Objective.

**SOIL AND
WATER**

Watershed Resource Improvement: S&W2

- A. Soil and water resources evolve under natural conditions. Improvement of soil and water resources is allowed only if it will provide a closer approximation of natural conditions than would be possible otherwise.

SUBSISTENCE

Subsistence: SUB

- A. Allow customary and traditional subsistence uses that are compatible with the objectives for which the RNA was established or proposed.

TIMBER

Timber Resource Planning: TIM112

- A. Forested lands are classified as unsuitable for timber production.
- B. Vegetation is allowed to evolve in natural undisturbed conditions. Non-native plants are removed if feasible. Personal use fuelwood and Christmas tree cutting activities are incompatible with LUD objectives.

TRAILS

Trail Activities: TRAI1

- A. Locating trails in this Land Use Designation is not permitted unless they contribute to the objectives or the protection of the area, unless otherwise provided by law.

TRANSPORTATION

Transportation Operations: TRAN1

- A. Unless otherwise provided by law, do not locate roads in this Land Use Designation unless they contribute to the objectives or protection of the area.

WILDLIFE

Wildlife Habitat Improvement: WILD22

- A. Wildlife habitats evolve in natural conditions except that non-native plants and animals are removed if feasible. Wildlife habitat enhancement is allowed to provide a closer approximation of natural conditions than would be possible otherwise.

SPECIAL INTEREST AREA

Land Use Designation SA

Goals

To provide for the inventory, maintenance, interpretation, and protection of the existing characteristics and attributes of areas with unique cultural, geological, botanical, zoological, recreational, scenic, or other special features.

Objectives

Provide opportunities for public study, use, and enjoyment of unique natural areas that are suitable to, and do not compromise, the characteristics of each area.

Allow only facilities and recreation developments that contribute to the interpretation of natural features or provide for compatible public uses, and that blend with the natural setting.

Provide for inventoried Recreation Opportunity Spectrum opportunities and activities, unless public use is specifically restricted for the protection of other resources.

Consider withdrawing each area from mineral entry, subject to valid existing rights, on a case-by-case basis, if mineral development would not be consistent with protecting the unique features of the area.

Apply the Retention Visual Quality Objective except around developed interpretive facilities, and other developments or structures.

Allow fish, wildlife, and/or soil and water improvements if they are compatible with the purposes for which each Special Interest Area was established.

Develop management plans for those Special Interest Areas needing specific direction for achieving these goals and objectives.

Desired Future Condition

All Special Interest Areas on the Tongass National Forest are characterized by generally unmodified environments in which unique natural features are preserved. They remain largely undisturbed by human uses or activities, except for localized interpretive purposes and, in some cases, recreation developments, and provide quality opportunities for public study, use, and enjoyment. Each is an example of one or more cultural, geological, botanical, zoological, paleontological, or other special features unique within the Tongass.

At-a-Glance . . .

Facilities

Administrative, interpretive, and informational sites are allowed to accomplish Special Interest Area objectives.

Fire

Suppression actions and prescribed fire are used to protect and improve resources in accordance with the Special Interest Area objectives.

Fish	Fish improvement projects may be allowed where they are compatible with Special Interest Area objectives.
Forest Health	Forest insect and disease management measures consistent with this Land Use Designation are implemented to protect the unique features of the area.
Heritage Resources	Heritage resources are located, evaluated, and protected. Use may be regulated to maintain or protect unique values. Interpretive activities may be provided.
Lands	Only authorizations which perpetuate the unique values that led to designation or proposal to designate as a Special Interest Area are permitted.
Minerals	Special Interest Areas may be withdrawn from mineral entry, subject to valid existing rights.
Recreation/Tourism	Use and interpretation are developed when adequate provisions for protection are available and the resource is suitable for the activity.
Scenery	Special Interest Areas are managed for their visual integrity, with most areas in a natural-appearing condition. The Visual Quality Objective is Retention. Exceptions may be made for developed recreation and interpretive portions of Special Interest Areas.
Soil and Water	Natural conditions are maintained to perpetuate the unique qualities of the Special Interest Area.
Subsistence	Subsistence use is allowed in accordance with Federal and state regulations.
Timber	Forested land is classified as unsuitable for timber production. Cutting of trees is authorized for development and maintenance of interpretive services for Special Interest Areas. Forest products are available for continued artistic use, if not in conflict with Special Interest Area purposes. Personal use fuelwood and Christmas tree cutting activities are usually incompatible with LUD objectives.
Transportation	Roads and trails are permitted where they are compatible with the objectives for which the Special Interest Area was established.
Wildlife	Wildlife habitat improvement projects may be allowed where compatible with Special Interest Area objectives.

Apply the following Forest-wide Standards & Guidelines located in Chapter 4:

RESOURCE	SECTION	SUB-SECTIONS	PAGE
AIR	AIR	All	4-2
BEACH AND ESTUARY FRINGE	BEACH1 BEACH2	All I,II(A-H,K)	4-3
BIODIVERSITY	BIO	I(A:1-5;11-14)	4-7
FACILITIES	FAC	All	4-9
FIRE	FIRE	All	4-10
FISH	FISH	All	4-12
FOREST HEALTH	HEALTH	All	4-18
HERITAGE RESOURCES	HER	All	4-19
KARST AND CAVE RESOURCES	KARST CAVE	I-III All	4-23
LANDS	LAND	All	4-26
LAW ENFORCEMENT	LAW	All	4-39
MINERALS AND GEOLOGY	MG11,12	All	4-40
RECREATION AND TOURISM	REC	All	4-42
RIPARIAN	RIP1,RIP2 RIP3	All I,II(A-E)	4-61
RURAL DEVELOPMENT	RUR	All	4-80
SCENERY	VIS1,12 VIS11	All I(B-D)	4-81
SOIL AND WATER	S&W	All	4-89
SUBSISTENCE	SUB	All	4-93
THREATENED, ENDANGERED, SENSITIVE	TE&S	All	4-95
TIMBER	TIM111,111-1 TIM114	All VIII	4-101
TRAILS	TRAI	All	4-112
TRANSPORTATION	TRAN111,122,212,22,23 TRAN214	All I-IV	4-115
WETLANDS	WET	All	4-123
WILDLIFE	WILD112 WILD 23	I,II;V-XIV All	4-124

Apply the following Land Use Designation Standards & Guidelines:

FACILITIES

Facilities Improvements: FAC2

- A. Allow administrative, interpretive, and information sites as needed to accomplish Special Interest Area objectives.

FIRE

Fire Suppression: FIRE12

Suppression Action

- A. All wildfires will be suppressed using the suppression action that minimizes fire suppression cost and resource damage. The action must meet the Special Interest Area objectives.
- B. Suppression tactics will be compatible with Special Interest Area objectives.

Fuel Improvements: FIRE2

Prescribed fire

- A. Management-ignited prescribed fire may be used if it is compatible with the Special Interest Area objectives.
- B. As a general management practice, prescribed natural fire will not be used in this Land Use Designation. Should it become necessary to consider the use of prescribed natural fire, the Forest Plan must be amended to analyze, justify, and approve prescribed natural fire programs. (Consult FSM 5142.)

FISH

Fish Habitat Planning: FISH112

- A. Provide for public interpretation of fish habitats, habitat enhancement projects, and associated special fisheries conditions in appropriate Special Interest Areas.
- B. Allow fish enhancement projects if they are compatible with Special Interest Area objectives.

FOREST HEALTH

Forest Health Management: HEALTH1

- A. Insect and disease management measures consistent with this Land Use Designation may be implemented to protect the area's special features and adjacent resources.

Forest Insect and Disease Survey and Inventory: HEALTH2

- A. Survey and inventory visible outbreaks.

HERITAGE

Heritage Resource Activities: HER

Inventory

- A. Identify significant heritage properties that include archaeological, historical, religious, or areas that contain specific forest resources of heritage value used for Native art and craft forms.

Evaluation and Protection

- A. Heritage Resource properties which are classified as Special Interest Areas under 36 CFR 294 shall be evaluated for the National Register of Historic Places and as possible National Historic Landmarks as established in 36 CFR 63.
 - 1. Establish the exterior boundary of heritage resource properties on the ground if determined necessary to protect the site.
 - 2. Protect heritage resource properties from degradation from effects of management activities occurring within adjacent Land Use Designations.
 - 3. Manage for the availability and use of forest products for traditional native heritage activities, while maintaining the physical and scientific integrity of the heritage resource properties.
 - 4. Provide interpretive devices to explain special features and protective regulations.
 - 5. Provide for interpretive activities that enhance the recreation experience, while protecting the unique values for which the heritage resource property was designated.
 - 6. Prevent the use of heritage resource property when national policy or sensitivity of unique values requires closure.

KARST AND CAVES Cave Management Program: CAVE

- A. Identify opportunities for interpretation of caves for public education and enjoyment. Interpretation may occur inside or outside of this LUD.

LANDS

Special Use Administration (Non-Recreation): LAND122

- A. Issue only those special use authorizations which will perpetuate the unique values that led to the designation or proposal to designate the Special Interest Area.
 - 1. Issue authorizations which will aid in the maintenance, improvement, and protection of the existing characteristics and attributes of the Special Interest Area.
 - 2. Analyze each proposal on a case-by-case basis, using an interdisciplinary process.
- B. This Land Use Designation represents a Transportation and Utility System (TUS) "Avoidance Area". Transportation and utility sites and corridors may be located within a Special Interest Area only after an analysis of potential TUS opportunities has been completed and no feasible alternatives exist outside the LUD.

Land Ownership Adjustments: LAND26

- A. Acquire private inholdings as opportunities arise.

MINERALS GEOLOGY

Minerals and Geology Resource Preparation: MG11

Resource Preparation

- A. Prepare geologic, paleontologic, and historic mining interpretations of Special Interest Areas where appropriate.

Minerals and Geology Administration: MG2

Forest Lands Withdrawn from Mineral Entry

- A. Consider recommending that Special Interest Areas be withdrawn from mineral entry, subject to valid existing rights, when mining would not be compatible with the area's objectives.
- B. Permit reasonable access to mining claims with valid existing rights in accordance with the provisions of an approved Plan of Operations.

Plan of Operations

- A. Reduce impacts to the extent feasible when developing minerals. Include mitigation measures that are compatible with the scale of proposed development and commensurate with potential resource impacts.
- B. Apply appropriate Transportation Forest-wide Standards & Guidelines to the location and construction of mining roads and facilities.

RECREATION AND TOURISM

Recreation Use Administration: REC122

Recreation Management and Operations

- A. Regulate use based on studies reflecting the effect of recreation and tourism activities on the unique features for which the Special Interest Area is established. Studies need only be done where a conflict may exist.
 - 1. Consider providing interpretation of the unique characteristics of the Special Interest Area.
 - 2. If studies indicate human use adversely affects the special features, regulate use to eliminate the adverse effects or reduce use to acceptable levels.
 - 3. Design and locate recreation-related structures to be compatible with characteristics of the area. Regulate user-created structures to avoid degradation of the unique character of the area. (Consult FS Recreation Site Development Handbook.)
 - 4. Restrict public motorized travel to designated travel routes except for powerboats operating on open water channels. (Consult FS Off-Road Vehicle Management Handbook.)
- B. Provide for inventoried or adopted ROS opportunities and activities within the Special Interest Area, unless public use is specifically restricted for resource protection.

Recreation Special Uses

- A. Major and minor developments may be compatible with the LUD objectives depending on the scope, purpose, and magnitude of the proposal. Proposals will be evaluated on a case-by-case basis. Refer to the Recreation and Tourism Forest-wide Standards and Guidelines.

SCENERY

Scenery Operations: VIS1

- A. Manage Areas for their visual integrity, with most areas in a naturally-appearing condition.
 - 1. Apply Forest-wide Standards and Guidelines for the Retention Visual Quality Objective, except in the portions with developed recreation or interpretive facilities (such as Mendenhall Glacier, Ward Lake, and Blind Slough).

2. In those portions with developed recreation or interpretive facilities (such as Mendenhall Glacier, Ward Lake, and Blind Slough), apply the Visual Quality Objective of Modification in the foreground and Partial Retention in the middleground and background.
3. Design visitor facilities to blend, to the extent feasible, with the natural setting.

TIMBER

Timber Resource Planning: TIM112

- A. Forested land is classified as unsuitable for timber production. Timber removal associated with development or maintenance of interpretation activities in Special Interest Areas is nonchargeable to the Allowable Sale Quantity. Forest products are available for continued traditional Native artistic use, if not in conflict with Special Interest Area purposes,
- B. Manage personal use wood gathering and Christmas tree cutting activities to be consistent with LUD objectives.

TRANSPORTATION

Transportation Operations: TRAN1

- A. Provide and manage a transportation system compatible with, or which will improve the interpretation of, the unique values of the Special Interest Area. (See exceptions under the Lands and Minerals, Geology, and Caves sections of this prescription.)

WILDLIFE

Wildlife Habitat Planning: WILD112

- A. Provide for public interpretation of wildlife habitats and associated special wildlife conditions in appropriate Special Interest Areas.
- B. Allow wildlife improvement projects where they are compatible with the purposes for which the Special Interest Area was established.

REMOTE RECREATION

Land Use Designation RM

Goals

To provide extensive, unmodified natural settings for primitive types of recreation and tourism.

To provide opportunities for independence, closeness to nature, and self-reliance in environments offering a high degree of challenge and risk.

To minimize the effects of human uses, including subsistence use, so that there is no permanent or long-lasting evidence.

Objectives

Manage recreation and tourism use and activities to meet the levels of social encounters, on-site developments, methods of access, and visitor impacts indicated for the Primitive Recreation Opportunity Spectrum class.

Provide trails and primitive facilities that are in harmony with the natural environment and that promote primitive recreation experiences.

Apply the Retention Visual Quality Objective.

Fish enhancement projects may occur. Design wildlife habitat improvements to emulate natural conditions and appearance.

Desired Future Condition

Areas in the Remote Recreation Land Use Designation are characterized by extensive, unmodified natural environments. Ecological processes and natural conditions are not noticeably affected by past or current human uses or activities. Users have the opportunity to experience independence, closeness to nature, solitude and remoteness, and may pursue activities requiring self-reliance in an environment that offers a high degree of challenge and risk. Interactions between users are infrequent. Motorized access is limited to traditional means: boats, aircraft and snowmachines. Facilities and structures are minimal, and rustic in appearance.

At-a-Glance . . .

Facilities	New permanent administrative facilities may be constructed.
Fire	All wildfires are suppressed using a suppression action that minimizes fire suppression costs and resource damage. Prescribed fire, to improve natural ecological processes, is not presently used, but may be considered in the future.
Fish	Aquatic biological habitat productivity is maintained or improved. Fisheries enhancement projects may occur.
Forest Health	Insect and disease management practices are implemented to maintain forest health in this and adjacent Land Use Designations.

Heritage Resources	Locate, evaluate and protect significant heritage resources. Interpretation may be provided.
Lands	Only those activities are permitted which leave no permanent or long-lasting evidence of human use and are otherwise consistent with recreation objectives.
Minerals	Lands are open to mineral entry. Mineral activities are compatible with the objectives of this Land Use Designation to the extent feasible.
Recreation/Tourism	This setting is managed to perpetuate essentially natural conditions and remoteness from modern human developments. Traditional motorized access occurs. Recreation and tourism use is managed to provide infrequent encounters and a high degree of solitude. Structures typically found in this LUD are recreation cabins, necessary boat and/or floatplane docks, and temporary structures for subsistence uses and other structures compatible with the primitive setting and typically needed for specially authorized activities.
Scenery	Landscapes are managed to retain a natural-appearing visual condition where activities are not visually evident to the casual observer. The Visual Quality Objective is Retention. Low visual-impact recreation and tourism facilities, cabins and other authorized structures and activities which meet Partial Retention may be acceptable.
Soil and Water	Watersheds are managed in a natural condition. Where authorized activities occur, emphasize the use of indigenous plants and materials to stabilize the soil resource or to protect water quality.
Subsistence	Subsistence activities occur in accordance with Federal and state regulations and may be seasonally prevalent throughout this Land Use Designation.
Timber	Forested lands are classified as unsuitable for timber production. Timber harvest generally does not occur. Silvicultural treatments are limited to control of insects and disease. Personal use wood is limited to the taking of beach logs which can be removed from coastlines without roads or use of vehicles on uplands. The cutting down of trees in navigable rivers (sweepers) and removal of trees from the banks must be compatible with the management direction for fish habitat.
Transportation	Few roads and trails are present. Roads, if present, are closed to motorized public use.
Wildlife	Wildlife habitats are generally subject to ecological changes only. Indigenous species are maintained. Habitat improvement projects are acceptable if designed to emulate natural conditions and appearance.

Apply the following Forest-wide Standards & Guidelines located in Chapter 4:

RESOURCE	SECTION	SUB-SECTIONS	PAGE
AIR	AIR	All	4-2
BEACH AND ESTUARY FRINGE	BEACH1 BEACH2	All I,II(A-G,N)	4-3
BIODIVERSITY	BIO	I(A:1-5;12-14)	4-7
FACILITIES	FAC	All	4-9
FIRE	FIRE	All	4-10
FISH	FISH	All	4-12
FOREST HEALTH	HEALTH	All	4-18
HERITAGE RESOURCES	HERIT	All	4-19
KARST AND CAVE RESOURCES	KARST CAVES	I-III All	4-23
LANDS	LAND	All	4-26
LAW ENFORCEMENT	LAW	All	4-39
MINERALS AND GEOLOGY	MG11 MG12	All II-VII	4-40
RECREATION AND TOURISM	REC111 REC112 REC122	All I,II(A,C,D),III All	4-42
RIPARIAN	RIP1 RIP2 RIP3	I(A:1-7) All I-II(A-E)	4-61
RURAL DEVELOPMENT	RUR	All	4-80
SCENERY	VIS1 VIS11 VIS12	All I,II(A) I(A,B,D),II-III	4-81
SOIL AND WATER	S&W	All	4-89
SUBSISTENCE	SUB	All	4-93
THREATENED, ENDANGERED, SENSITIVE	TE&S	All	4-95
TIMBER	TIM111,111-1 TIM114	All VIII(D)	4-101
TRAILS	TRAI	All	4-112
TRANSPORTATION	TRAN	None	4-115
WETLANDS	WET	All	4-123
WILDLIFE	WILD112 WILD22 WILD23	I-III;V;VI(A,B,D);VII,VIII; IX(A:1-7,10);X,XI(A:1,2);XII;XIII,XIV I(A:1,B) All	4-124

Apply the following Land Use Designation Standards & Guidelines:

FACILITIES

Facilities Improvements: FAC2

- A. Permanent administrative and recreation facilities may be constructed

FIRE

Fire Suppression: FIRE12

Suppression Action

- A. All wildfires are suppressed using the suppression option identified in the Southeast Alaska/Prince William Sound Fire Management Plan. An Escaped Fire Situation Analysis (EFSA) of expected fire behavior, time of year, and locations with respect to private land and adjacent LUD's may lead to a lower strategy. If an EFSA discloses no adverse effects and it is more cost-efficient, the lower strategy will be used.
- B. Suppression tactics will emphasize the least possible disturbance or evidence of human presence.
 - 1. Use of mechanized equipment should be kept to a minimum.
 - 2. Suppression tactics will avoid human/bear conflicts and existing policy will be emphasized to leave no trash or any other kinds of bear attractants in the area.
 - 3. Rehabilitation of all campsites, suppression lines, and other evidence of human presence will occur as soon as it is safe, but within one year after the fire occurs.

Fuel Improvements: FIRE2

Prescribed fire

- A. As a general management practice, management-ignited prescribed fire will not be used in this Land Use Designation. Should it become necessary to consider the use of management-ignited prescribed fire, FSM 2324 provides direction.
- B. As a general management practice, prescribed natural fire will not be used in the Land Use Designation. Should it become necessary to consider the use of prescribed natural fire, the Forest Plan must be amended to analyze, justify, and approve prescribed natural fire programs. (Consult FSM 5142.)

FISH

Fish Habitat Planning: FISH112

Fish Enhancement

- A. Evaluate fish habitat improvement during project planning by considering: 1) effects resulting from the introduction of species not indigenous to the watershed; 2) the appropriateness of structures both in type and scale to the Primitive Recreation Opportunity Spectrum (ROS) setting; and 3) the need to provide well-distributed fisheries that support sport and commercial fisheries, subsistence, and community stability.

Fish Habitat Improvement: FISH22

- A. Design development to minimize impact on primitive setting.
- B. Construction techniques should be compatible with the primitive recreation setting.
- C. Evidence of necessary land-disturbing activities for construction should not be visible to the casual observer after 5 years.

FOREST HEALTH

Forest Health Management: HEALTH1

- A. Implement insect and disease management practices to maintain forest health in this and adjacent Land Use Designations.

Forest Insect and Disease Survey and Inventory: HEALTH2

- A. Survey and inventory visible outbreaks annually.

HERITAGE

Heritage Resource Activities: HER

Enhancement

- A. Heritage resources are available for recreational, scenic, scientific, educational, conservation, and historic uses.
 - 1. Provide interpretive information concerning heritage resources located inside this Land Use Designation should be in the form of exhibits and publications located outside the Land Use Designation.
 - 2. Heritage resources are available for scientific studies that are consistent with the primitive settings and activities, and heritage resource management objectives for the specific site.

Inventory/Evaluation

- A. Develop priorities and schedule management activities to implement heritage resource inventory, evaluation, protection, and interpretation within this Land Use Designation.
 - 1. Identify, classify, and evaluate known heritage resources.
 - 2. Identify heritage properties to be nominated to the National Register of Historic Places.
 - 3. Identify heritage properties that require stabilization or other protective measures.
 - 4. Identify opportunities for interpretation of heritage resources for public education and enjoyment.

KARST AND CAVES

Cave Management Program: CAVE

- A. Identify opportunities for interpretation of caves for public education and enjoyment. Interpretation will generally occur outside this LUD.
- B. Manage caves as Class 1 (Sensitive) or Class 3 (Undeveloped) as described in the Karst and Cave Resources Forest-wide Standards and Guidelines.

LANDS

Special Use Administration (Non-Recreation): LAND122

- A. Permit only those new activities which are compatible with the Land Use Designation.

1. Permit temporary structures and major fisheries improvement projects (such as hatcheries) only if they are widely dispersed.
 2. Permitted activities and structures should not be visually evident from a Visual Priority Route or Use Area (see Appendix F).
- B. This Land Use Designation represents a Transportation and Utility System (TUS) "Avoidance Area." Transportation and utility sites and corridors may be located within this Land Use Designation only after an analysis of potential TUS corridors has been completed and no feasible alternatives exist outside this LUD.

MINERALS GEOLOGY

Minerals and Geology Administration: MG12

Forest Lands Open to Mineral Entry

- A. Forest lands within this Land Use Designation are open to mineral exploration and development. Mineral activities will be compatible with objectives of this Land Use Designation to the extent feasible.
- B. Assure prospectors and claimants their right of ingress and egress granted under the General Mining Law of 1872, ANILCA, and National Forest Service Minerals Regulations 36 CFR 228.
- C. Permit reasonable access to mining claims in accordance with the provisions of an approved Plan of Operations.

Plan of Operations

- A. Work with claimants to develop a Plan of Operations that adequately mitigates adverse impacts to Land Use Designation objectives. Include mitigation measures that are compatible with the scale of proposed development and commensurate with potential resource impacts.
- B. Apply Transportation Forest-wide Standards and Guidelines to the location and construction of mining roads and facilities.
- C. Manage mineral exploration and development activities to be compatible with the emphasis of the Remote Recreation Land Use Designation. Apply the following management practices to reduce resource impacts.
 1. Manage mineral activities to maintain the present and continued productivity of anadromous fish and other foodfish habitat to the maximum extent feasible. (Consult ANILCA, Section 505 (a).)
 2. Take maximum advantage of topographic and vegetative screening when locating drill rigs and pumps, roads, rock quarries, structures, and marine transfer facilities.
 3. Discourage use of motorized surface vehicles, except as provided in ANILCA, Section 1110(b), which assures adequate and feasible access for economic and other purposes.
 4. Locate material sites and marine transfer facilities outside this Land Use Designation if reasonable alternatives exist.
 5. Ensure that vegetation removed from the project area is hauled away, buried, burned, or scattered.
 6. Minimize the scale of spoil/disposal areas to the surrounding landscape as seen from sensitive view points.
 7. Approve use of colors that simulate those found in the characteristic landscape. Avoid use of reflective materials in project facilities.

8. Approve reclamation plans in which minerals activities leave a natural-appearing condition.
9. Ensure that landform modifications simulate naturally-occurring forms.
10. Ensure that disturbed areas are revegetated in accordance with project plans.

RECREATION AND TOURISM

Recreation Use Administration: REC122

Recreation Management and Operations

- A. Provide for Primitive recreation setting, recognizing other Recreation Opportunity Settings (ROS) may be present due to authorized activities, existing use patterns, and activities in adjacent Land Use Designations. Strive to minimize these changes from the Primitive ROS objective.
- B. Manage recreation and tourism use to meet the levels of social encounters, on-site development, and visitor impacts indicated by the ROS charts in the Recreation and Tourism Forestwide Standards and Guidelines.

Recreation Special Uses

- A. Major developments are generally not consistent with the objectives of this Land Use Designation. Development proposals require scrutiny of the magnitude and scope for LUD conformance. Refer to the Recreation and Tourism Forest-wide Standards and Guidelines.
- B. Minor developments may be compatible with the LUD objectives depending on the scope, purpose, and magnitude of the proposal. Proposals will be evaluated on a case-by-case basis. Refer to the Recreation and Tourism Forest-wide Standards and Guidelines.

SCENERY

Scenery Operations: VIS1

- A. Provide a visual condition in which activities are not visually evident to the casual observer.
 1. Apply Forest-wide Standards and Guidelines for the Retention Visual Quality Objective.
 2. Exceptions for small areas of non-conforming developments, such as recreation sites, may be considered on a case-by-case basis (see the Recreation and Tourism standards and guidelines in this prescription).

SOIL AND WATER

Watershed Resource Improvements: S&W2

- A. Watersheds will be managed in a natural condition.
- B. Use indigenous plants and materials to protect or improve the quality and/or quantity of the water resource or to stabilize soils.

TIMBER

Timber Resource Planning: TIM12

- A. Forested land is classified as unsuitable for timber production.
- B. Taking of personal use wood will be limited to beach logs which can be removed from coastlines without roads or use of vehicles on uplands. The cutting down of trees in navigable rivers (sweepers)

and removal of trees from the banks must be compatible with the management direction for fish habitat.

TRANSPORTATION Transportation Operations: TRAN1

- A. New roads are not permitted except to access valid mining claims (or as excepted under Lands).
- B. Existing roads in this Land Use Designation are closed to motorized uses subject to ANILCA provisions.
- C. Use of snowmachines, motorboats, and aircraft is permitted.

WILDLIFE Wildlife Habitat Planning: WILD112

- A. Wildlife habitats are generally subject to ecological changes only.
- B. Indigenous species are maintained.
- C. Habitat improvement projects are acceptable if designed to emulate natural conditions and appearance.

ENACTED MUNICIPAL WATERSHED

Land Use Designation MW

The emphasis of this Land Use Designation is to meet the State of Alaska's Water Quality Standards for domestic use for enacted municipal watersheds of Ketchikan, Sitka and Petersburg. These enacted municipal watersheds were established and are withdrawn from all forms of location, entry, or appropriation under the mineral and nonmineral land laws of the United States and set aside as municipal water-supply reserves for the use and benefit of the people of the three communities.

Goals

To maintain the enacted municipal watersheds of Ketchikan, Petersburg, and Sitka as municipal water supply reserves for these communities, in a manner that meets State of Alaska Water Quality Standards for domestic use.

Objectives

Limit most management activities to the protection and maintenance of natural resources. Fish enhancements, and watershed and wildlife habitat improvements, may occur if they are compatible with the municipality's watershed management objectives.

Classify forested land as unsuitable for timber production. Salvage logging will only occur after consultation with the municipality.

Limit facilities and roads to those necessary for municipal water supply purposes.

Recreation uses will be authorized by the Forest Supervisor in consultation with the municipality and will be limited to those that will protect water quality and flow.

Desired Future Condition

Lands managed as Enacted Municipal Watersheds are generally in a natural condition. Facilities or structures to provide domestic water may be present. Uses or activities that could adversely affect water quality or supply do not occur. These watersheds provide domestic water that meets all State Water Quality Standards for domestic use.

At-a-Glance . . .

Facilities	Facilities are limited to those structures which are necessary to administer and supply water for domestic use. No Forest Service administrative facilities are constructed. Facilities such as dams, reservoirs, and pipelines are consistent with the LUD emphasis.
Fire	All wildfires are suppressed using suppression action that minimizes suppression costs and resource damage. Management ignited prescribed fire may be used to maintain or improve watershed characteristics.
Fish	Fish habitat projects may occur if they are compatible with municipal watershed management objectives.

Forest Health	Insect and disease management measures are implemented to protect the watershed and adjacent resources.
Heritage Resources	Locate, evaluate and protect significant heritage resources. Interpretation may be provided, although interpretation may generally occur outside LUD boundaries.
Lands	Special use authorizations are limited to those which support water development activities and which safeguard the quality and quantity of municipal water supplies. Before a special use authorization is issued, written concurrence of the municipality is required.
Minerals	These watersheds are withdrawn from mineral entry subject to valid existing rights.
Recreation/Tourism	Only recreation use authorized by the Forest Supervisor in consultation with the municipality is allowed.
Scenery	Visual Quality Objectives will vary based on the management activities authorized in the watershed.
Soil and Water	Soil and water protective measures are applied to protect the watersheds and water resources for domestic use. Soil and water improvement occurs on all disturbances that threaten watershed management values.
Subsistence	Subsistence uses are allowed in accordance with applicable Federal, state, and municipal regulations.
Timber	Forested land is classified as unsuitable for timber production. There is no scheduled harvest, but salvage may be considered on a case-by-case basis in coordination with the municipality. Personal use wood and Christmas tree cutting activities are usually incompatible.
Trails	Trail systems are limited to those which are necessary to administer the municipal watershed.
Transportation	Road systems are limited to those necessary to administer the municipal watershed.
Wildlife	Wildlife habitats are managed for uses compatible with watershed management objectives.

Apply the following Forest-wide Standards & Guidelines located in Chapter 4:

RESOURCE	SECTION	SUB-SECTIONS	PAGE
AIR	AIR	All	4-2
BEACH AND ESTUARY FRINGE	BEACH1,BEACH2	All	4-3
BIODIVERSITY	BIO	All	4-7
FACILITIES	FAC	All	4-9
FIRE	FIRE	All	4-10
FISH	FISH111 FISH112	All All	4-12
FOREST HEALTH	HEALTH	All	4-18
HERITAGE RESOURCES	HER	All	4-19
KARST AND CAVE RESOURCES	KARST,CAVE	All	4-23
LANDS	LAND	All	4-26
LAW ENFORCEMENT	LAW	All	4-39
MINERALS AND GEOLOGY	MG11 MG12	All I	4-40
RECREATION AND TOURISM	REC111 REC112 REC122	All I(A),II(A) I;III,VI,VII	4-42
RIPARIAN	RIP1,RIP2,RIP3	All	4-61
RURAL DEVELOPMENT	RUR	All	4-80
SCENERY	VIS	All	4-81
SOIL AND WATER	S&W	All	4-89
SUBSISTENCE	SUB	None	4-93
THREATENED, ENDANGERED, SENSITIVE	TE&S	All	4-95
TIMBER	TIM111-1 TIM114	All VIII	4-101
TRAILS	TRAI	All	4-112
TRANSPORTATION	TRAN111,122,212,22,23 TRAN214	All I-IV	4-115
WETLANDS	WET	All	4-123
WILDLIFE	WILD	All	4-124

Apply the following Land Use Designation Standards & Guidelines:

FACILITIES

Facilities Improvements: FAC2

- A. No Forest Service administrative facilities will be constructed. Facilities such as dams, reservoirs, pipelines are consistent with LUD objectives.

FIRE

Fire Suppression: FIRE12

Suppression Action

- A. All wildfires will be suppressed using the suppression option identified in the Southeast Alaska/Prince William Sound Fire Management Plan. An Escaped Fire Situation Analysis (EFSA) of expected fire behavior, time of year, and locations with respect to private land and adjacent LUD's, may lead to a lower strategy. If an EFSA discloses no adverse effects and it is more cost-efficient, the lower strategy will be used.
- B. Suppression tactics will emphasize the least possible disturbance or evidence of human presence.
 - 1. Use of mechanized equipment should be kept to a minimum.
 - 2. Rehabilitation of all suppression lines and other evidence of human presence will occur as soon as safe, and no more than one year after the fire occurs.

Fuel Improvements: FIRE2

Prescribed fire

- A. As appropriate, management-ignited prescribed fire will normally be used rather than mechanical treatment to reduce the fire hazard from timber salvage. Management-ignited prescribed fire may also be used to maintain or improve watershed characteristics as long as there is no adverse impact to water quality.
- B. As a general management practice, prescribed natural fire will not be used in this Land Use Designation. Should it become necessary to consider the use of prescribed natural fire, the Forest Plan must be amended to analyze, justify, and approve prescribed natural fire programs. (Consult FSM 5142).

FISH

Fish Habitat Planning: FISH12

- A. Plan the construction and maintenance of fish improvement projects only if they are compatible with the municipal watershed objectives.
 - 1. Restrict fish improvements which result in reduced water quality for a municipality using the water from the affected stream.
 - 2. When planning fish habitat improvement projects, Consider the effects of anticipated municipal water withdrawals.

FOREST HEALTH

Forest Health Management: HEALTH1

- A. Maintain or improve forest health. Implement insect and disease management measures to protect the watershed and adjacent resources.

- B. Timber may be salvaged at the request of municipality.

Forest Insect and Disease Survey and Inventory: HEALTH2

- A. Survey and inventory visible outbreaks.

HERITAGE

Heritage Resource Activities: HER

Inventory/Evaluation

- A. Develop priorities and schedule management activities to implement heritage resource inventory, evaluation, protection, and interpretation within this Land Use Designation.
 - 1. Identify, classify, and evaluate known heritage resources.
 - 2. Identify heritage properties to be nominated to the National Register of Historic Places.
 - 3. Identify heritage properties that require stabilization or other protective measures.
 - 4. Identify opportunities for interpretation of heritage resources for public education and enjoyment. Interpretation will generally occur outside the enacted municipal watershed.

KARST AND CAVE

Cave Management Program: CAVES

- A. Caves may be made available for general public recreation and education uses, only when compatible with watershed objectives and in consultation with the municipality.
- B. Identify opportunities for interpretation of caves for public education and enjoyment. Interpretation will generally occur outside this LUD.

LANDS

Special Use Administration (Non-Recreation): LAND122

- A. Manage special uses in accordance with the legislation establishing the watershed and to safeguard the quality and quantity of municipal water supplies. Limit special uses to those which support development activities. Coordinate all proposals with affected municipalities and obtain written concurrence before issuing special use authorizations. (Consult 36 CFR 251.9, 36 CFR 251.35, and FSM 2700.)
 - 1. Analyze special use proposals on a case-by-case basis, using an interdisciplinary process, to determine probable effects.
 - 2. Do not permit any activities which would lead to degradation of water quality below State of Alaska Water Quality Standards for domestic use.
 - 3. Terminate or bring into conformance, existing uses which are causing degradation of water quality below State of Alaska Water Quality Standards for domestic use.
- B. This Land Use Designation represents a Transportation and Utility System (TUS) "Avoidance" Area. Transportation and utility sites and corridors may be located in this LUD only after an analysis of potential TUS corridors has been completed and no feasible alternatives exist outside this LUD.

Land Ownership Adjustments: LAND26

- A. Protect municipal interests in land adjustment decisions. Unless otherwise prohibited by law, encourage actions which result in the affected municipality owning the land.
 - 1. Dispose of lands only when allowed to by applicable legislation.
 - 2. When disposal is contemplated, involve the affected municipality early in the process.
 - 3. Encourage state land selections under the Statehood Act for subsequent transfer to the municipal governing body.
 - 4. If legislation allows, consider exchange of these lands with the affected municipality.
 - 5. Do not acquire National Forest lands for municipal watershed purposes.

MINERALS GEOLOGY

Minerals and Geology Resource Preparation: MG11

Resource Preparation

- A. Interpret geologic, paleontologic, and historic mining for municipal watersheds where appropriate.

Minerals and Geology Administration: MG12

Forest Lands Withdrawn from Mineral Entry

- A. Withdraw municipal watersheds from mineral entry subject to valid existing rights.

RECREATION AND TOURISM

Recreation Use Administration: REC122

Recreation Management and Operation

- A. Provide only for those activities and recreation use levels that can be accommodated without detriment to water quality and flow.
- B. Issue appropriate orders for regulating public use within the watershed, in cooperation with the municipality.

Recreation Special Uses

- A. Major and minor developments are generally not consistent with objectives for this LUD. Proposals for development will require scrutiny of the magnitude and scope of the project to see if they meet LUD objectives. Refer to the Recreation and Tourism Forest-wide Standards and Guidelines.

SCENERY

Scenery Operations: VIS1

- A. Considerations for the visual resource will be secondary to the objectives of the municipal watershed. Visual quality conditions are the result of the municipality's watershed management objectives.
 - 1. Design management activities within the watershed to minimize visual impacts as seen from Visual Priority Travel Routes and Use Areas. (See Appendix F).

SOIL AND WATER

Watershed Resource Planning: S&W112

- A. Comply with the State of Alaska's Water Quality Standards for domestic use.

Watershed Resource Improvement: S&W2

- A. Soil and water protective measures are applied to protect the watersheds and water resources for domestic use. Soil and water improvement will occur on all disturbances that threaten the watershed values.
- B. Coordinate soil and water improvement projects with the affected municipality.

SUBSISTENCE

Subsistence: SUB

- A. Permit subsistence activities in accordance with the Federal, state, and local laws and regulations establishing the municipal watersheds.

TIMBER

Timber Resource Planning: TIM112

- A. Forested land is classified as unsuitable for timber production.
- B. No timber harvest is scheduled. Salvage may be considered on a case-by-case basis in consultation with the municipality. Volume harvested will not be considered part of the Allowable Sale Quantity (ASQ).
- C. Personal use wood and Christmas tree cutting activities are usually incompatible with LUD objectives.

TRAILS

Trails: TRAI1

- A. Trail systems are limited to those which are necessary to administer the municipal watershed.

TRANSPORTATION

Transportation Operations: TRAN1

- A. Allow roads needed for the routine operation, maintenance, and improvement of the municipal water system and watershed. Allow roads to provide for timber salvage operations if they are permitted by the watershed's establishing legislation and after consultation with the affected municipality. If no alternative exists, roads that are part of a state transportation system may occur in this area.
 - 1. Conduct a transportation analysis to determine optimum road location and design standards to ensure minimum adverse impacts to the watershed.
 - 2. Coordinate road management with the affected municipality. Manage access in accordance with the legislation establishing the watershed.
 - 3. Road construction may occur if it is consistent with legislation establishing the watershed and it can be done without unacceptable degradation of water quality.

WILDLIFE

Wildlife Habitat Planning: WILD112

- A. Manage wildlife habitats for uses compatible with the watershed management objectives.

OLD-GROWTH HABITAT

Land Use Designation OG

Goals

Maintain areas of old-growth forests and their associated natural ecological processes to provide habitat for old-growth associated resources.

Manage early seral conifer stands to achieve old growth forest characteristic structure and composition based upon site capability. Use old growth definitions as outlined in *Ecological Definitions for Old-growth Forest Types in Southeast Alaska* (R10-TP-28).

Objectives

Provide old-growth forest habitats, in combination with other Land Use Designations, to maintain viable populations of fish and wildlife species and subspecies that may be closely associated with old-growth forests.

Contribute to the habitat capability of fish and wildlife resources to support sustainable human subsistence resources and recreational uses.

Maintain components of floral and fauna biodiversity and ecological processes associated with old-growth forests.

Allow existing natural or previously-harvested early seral conifer stands to evolve naturally to old-growth forest habitats, or apply silvicultural treatments to accelerate forest succession to achieve old-growth forest structural features. Consider practices such as thinning, release and weeding, pruning, and fertilization to promote accelerated development of old-growth characteristics.

To the extent feasible, limit roads, facilities, and permitted uses to those compatible with old-growth management objectives.

Desired Future Condition

All forested areas within this Land Use Designation have attained old-growth characteristics. A diversity of old-growth habitat types and associated species and subspecies and ecological processes are represented.

At-a-Glance . . .

Facilities

Administrative and recreational facilities are allowed.

Fire

All wildfires are suppressed using a suppression action that minimizes fire suppression costs and resource damage. Management-ignited prescribed fire is acceptable if its use will maintain old-growth characteristics.

Fish

Aquatic biological habitat productivity is maintained or improved. Fisheries improvement projects may occur.

Forest Health	Insect and disease management measures consistent with LUD objectives may be implemented to maintain or improve the old-growth component and adjacent resources.
Heritage Resources	Locate, evaluate and protect significant heritage resources. Interpretation may be provided.
Lands	Special use facilities compatible with LUD objectives are permitted.
Minerals	Lands are open to mineral entry.
Recreation/Tourism	Recreation uses are managed consistent with the inventoried ROS Class compatible with maintaining habitat conditions and wildlife populations.
Scenery	Management activities are generally not evident to the casual observer, except in occasional areas where management activities are subordinate to the characteristics landscape. The Visual Quality Objective is Retention.
Soil and Water	Soil and water resources are generally subject to natural changes only.
Subsistence	Subsistence use is allowed in accordance with applicable Federal and state regulations.
Timber	Forest land is classified as unsuitable for timber production. Personal use wood gathering is allowed based on local determination.
Transportation	Roads are located outside this Land Use Designation to the extent feasible. Trails are allowed.
Wildlife	Wildlife habitats are to be maintained in old-growth conditions.

Apply the following Forest-wide Standards & Guidelines located in Chapter 4:

RESOURCE	SECTION	SUB-SECTIONS	PAGE
AIR	AIR	All	4-2
BEACH AND ESTUARY FRINGE	BEACH1 BEACH2	All I(A-G,N)	4-3
BIODIVERSITY	BIO	I(A:1-5;11-14)	4-7
FACILITIES	FAC	None	4-9
FIRE	FIRE	All	4-10
FISH	FISH	All	4-12
FOREST HEALTH	HEALTH	All	4-18
HERITAGE RESOURCES	CULT	All	4-19
KARST AND CAVE RESOURCES	KARST,CAVE	All	4-23
LANDS	LAND	All	4-26
LAW ENFORCEMENT	LAW	All	4-39
MINERALS AND GEOLOGY	MG11 MG12	All II-VII	4-40
RECREATION AND TOURISM	REC	All	4-42
RIPARIAN	RIP1,RIP2 RIP3	All I,II(A-E)	4-61
RURAL DEVELOPMENT	RUR	All	4-80
SCENERY	VIS1,12 VIS11	All I,II(A)	4-81
SOIL AND WATER	S&W1111,1112,2 S&W112	All I	4-89
SUBSISTENCE	SUB	All	4-93
THREATENED, ENDANGERED, SENSITIVE	TE&S	All	4-95
TIMBER	TIM111,111-1 TIM114	All VIII	4-101
TRAILS	TRAI	All	4-112
TRANSPORTATION	TRAN	All	4-115
WETLANDS	WET	All	4-123
WILDLIFE	WILD112 WILD 22 WILD23	I-III; V-VIII; IX(A:1-7,9-10); X-XV I(A:1;B) All	4-124

Apply the following Land Use Designation Standards & Guidelines:

FACILITIES

Facilities Improvements: FAC2

- A. Allow administrative and recreational facilities when compatible with Land Use Designation objectives.

FIRE

Fire Suppression: FIRE12

Suppression Action

- A. All wildfires will be suppressed using the suppression option identified in the Southeast Alaska/Prince William Sound Fire Management Plan. An Escaped Fire Situation Analysis (EFSA) of expected fire behavior, time of year, and locations with respect to private land and adjacent land use areas, may lead to a lower strategy. If an EFSA discloses no adverse effects and it is more cost-efficient, the lower strategy will be used.
- B. Suppression tactics are limited only by the standards for this Land Use Designation, such as soil and watershed concerns.

Fuel Improvements: FIRE2

Prescribed fire

- A. Management-ignited prescribed fire is acceptable if its use will maintain old-growth characteristics.
- B. Prescribed natural fire will not be used in this Land Use Designation.

FISH

Fish Habitat Planning: FISH112

- A. Emphasize the protection and restoration of fish habitat, fish production and aquatic biodiversity. Enhancement projects that change the natural distribution of fish species within a watershed will be consistent with Land Use Designation objectives.

FOREST HEALTH

Forest Health: HEALTH1

- A. Insect and disease management measures consistent with this Land Use Designation may be implemented to protect the old-growth component and adjacent resources.

Forest Insect and Disease Survey and Inventory: HEALTH2

- A. Survey and inventory visible outbreaks.

HERITAGE

Heritage Resource Activities: HER

Inventory/Evaluation

- A. Develop priorities and schedule management activities to implement heritage resource inventory, evaluation, protection, and interpretation within this Land Use Designation.
 - 1. Identify, classify, and evaluate known heritage resources.
 - 2. Identify heritage properties to be nominated to the National Register of Historic Places.
 - 3. Identify heritage properties that require stabilization or other protective measures.
 - 4. Identify opportunities for interpretation of heritage resources for public education and enjoyment.

KARST AND CAVES Cave Management Program: CAVE

- A. Identify opportunities for interpretation of caves for public education and enjoyment. Interpretation may occur inside or outside of this LUD.

LANDS

Special Use Administration (Non-Recreation): LAND122

- A. Permit only improvements (such as tent platforms, fish weirs, minor waterlines, minor powerlines, etc.) which are compatible with Land Use Designation objectives.
- B. This Land Use Designation represents a Transportation and Utility Systems (TUS) "Avoidance Area." Transportation and utility sites or corridors may be located within this Land Use Designation only after an analysis of potential TUS corridor opportunities has been completed and no feasible alternatives exist outside this LUD.

**MINERALS
GEOLOGY**

Minerals and Geology Administration: MG12

Forest Lands Open to Mineral Entry

- A. Forest lands within this Land Use Designation are open to mineral entry.
- B. Assure prospectors and claimants their right of ingress and egress granted under the General Mining Law of 1872, ANILCA, and National Forest Service Mining Regulations 36 CFR 228.
- C. Permit reasonable access to mining claims in accordance with the provisions of an approved Plan of Operations.

Plan of Operations

- A. Work with claimants to develop a Plan of Operations that minimizes, monitors, and mitigates adverse impacts to Land Use Designation objectives. Monitoring plans should specifically assess impacts to threatened, endangered or sensitive species or other significant fish and wildlife resources. Include mitigation measures that are compatible with the scale of proposed development and commensurate with potential resource impacts..
- B. Apply Transportation Forest-wide Standards and Guidelines to the location and construction of mining roads and facilities.
- C. Manage mineral exploration and development activities to be compatible with LUD emphasis. Apply the following management practices to avoid or reduce impacts.
 - 1. Manage mineral activities to maintain the present habitat capability and continued productivity of anadromous fish and other foodfish habitat to the maximum extent feasible. (Consult ANILCA, Section 505 (a).)
 - 2. Take advantage of topographic and vegetative screening when locating drill rigs and pumps, roads, rock quarries, structures, and marine transfer facilities.
 - 3. Locate material sites and marine transfer facilities outside this Land Use Designation if reasonable alternatives exist.
 - 4. Minimize the scale of spoil/disposal areas in relation to the surrounding landscape as seen from sensitive viewpoints to leave a naturally-appearing condition.

5. Ensure the disturbed areas are revegetated in accordance with project plans, emphasizing the use of native vegetation and local genetic plant stocks.
6. Apply timing restrictions to minerals activities as needed to prevent or minimize disturbance to fish and wildlife during critical life stages (e.g., spawning, molting, nesting or brood-rearing).

RECREATION AND TOURISM

Recreation Use Administration: REC122

Recreation Management and Operations

- A. Manage recreation and tourism use to meet Land Use Designation objectives for fish and wildlife resources and habitat.
 1. Design and locate recreation-related structures to be compatible with habitat needs of old-growth associated species.
 2. Manage off-highway vehicle use to prevent degradation of habitat or adverse disturbance to fish and wildlife populations.
- B. Continue to provide the spectrum of outdoor recreation opportunities in accordance with the existing capabilities of this Land Use Designation.

Recreation Special Uses

- A. Minor recreation and tourism developments may be compatible with the LUD objectives depending on the scope, purpose, and magnitude of the proposal. Proposals will be evaluated on a case-by-case basis. Refer to the Recreation and Tourism Forest-wide Standards and Guidelines.

SOIL AND WATER

Watershed Resource Improvements: S&W2

- A. Undertake watershed improvements only where deteriorated soil and hydrologic conditions create a threat to the goals and objectives for which the old-growth habitat is managed. Rehabilitation or stabilization projects will seek to enable the area to retain its natural appearance.

TIMBER

Timber Resource Planning: TIM112

- A. Forest land is classified as unsuitable for timber production.
- B. Beach log salvage is compatible with this Land Use Designation.
- C. Personal use wood gathering is allowed if limited to locally determined areas. Salvage of bridge stringer logs is permitted.

Timber Sale Preparation: TIM114

- A. Salvage of dead or down material is limited to catastrophic windthrow (generally exceeding 100 acres). Standing green timber may be removed only for safety reasons or for feasibility of salvage operations. Salvage sales must be compatible with the objectives of the Old-growth Habitat Land Use Designation as determined through the environmental analysis process. Stands once salvaged will be managed to achieve old-growth habitat characteristics.

TRANSPORTATION

Transportation Operations: TRAN1

- A. If no feasible alternative is available, road corridors may be designated.
 1. Perform integrated logging system and transportation analysis to determine if other feasible routes avoiding this Land Use Designation exist. For timber salvage, use logging systems that do not require additional permanent road construction. Consider impacts to fish and wildlife and enforcement costs of road closures in the analysis.

- If no feasible alternative routes exist, locate, design, construct, and manage roads in a manner which will be compatible with Land Use Designation objectives. If roads are placed within this Land Use Designation, clearing widths should be kept to the minimum feasible.
- B. Sites for log transfer facilities will be considered in this Land Use Designation only if no other feasible alternative exists.
 - 1. To meet the Visual Quality Objective of Retention, special consideration must be given to reducing apparent landform modification (as seen from sensitive travel routes) during log transfer facility location, design, and construction.
 - 2. If no other feasible alternative sites exist, locate, design, construct, and manage these facilities in a manner which will be compatible with Land Use Designation objectives.

SCENERY

Scenery Operations: VIS1

- A. Apply Forestwide Standards and Guidelines for the Retention Visual Quality Objective. Design activities to not be visually evident to the casual observer.

WILDLIFE

Wildlife Habitat Planning:

(Reserves are applied Forest-wide only in Alternatives 3 and 8)

(Reserves are applied In 4 Provinces in Alternatives 5 and 6: North Prince of Wales, Kupreanof/Mitkof, Dall Island, and Northeast Chichagof, Plus 4 specific reserves = Myers Chuck, Honker Divide Connection, Lake Eva, and Wright Lake)

- A. Maintain blocks of old-growth forest habitat to support viable and well-distributed populations of old-growth associated species and subspecies.
- B. During project level environmental analysis, in analysis areas near or adjacent to mapped Old Growth reserves, assess the integrity of the size, spacing and habitat composition of existing mapped reserves. Reserves that do not meet minimum criteria shall be adjusted to meet minimum reserve design requirements. Reserve location and composition may also be adjusted if, through environmental analysis, an alternate reserve location and configuration is identified that better achieves old-growth habitat objectives. Mapped Old Growth reserve size, spacing and habitat composition criteria are:
 - 1. Large Reserves: a contiguous landscape of at least 40,000 acres of which at least 20,000 acres must be productive old growth forest. At least 10,000 acres of the productive old growth forest (over 8,000 board feet per acre) component must be in the highest volume class strata (greater than 25,000 board feet per acre). Large reserves shall not be less than 20 miles apart, edge to edge, across the entire forest. Landscapes within the range of brown bears will include at least 1 Class I anadromous fish stream.
 - 2. Medium Reserves: a contiguous landscape of at least 10,000 acres of which at least 5,000 acres must be productive old growth forest. At least 2,500 acres of the productive old growth forest component must be in the highest volume class strata. Medium reserves shall not be greater than 8 miles from the nearest Large or Medium reserve across the entire forest.
 - 3. Small Reserves: a contiguous landscape of at least 1,600 acres of which at least 800 acres must be productive old growth forest. Provide

- 1 small reserve for each major watershed (approximately 10,000 acres).
4. To the extent feasible, first use Land Use Designations that maintain the integrity of old growth forest habitats to establish a forestwide system of reserves. Reserves should be circular rather than linear in shape to maximize the amount of interior (secure from the effects of forest edge) forest habitat.
 - C. Allow previously harvested or natural early seral stands to develop into old-growth habitats, or provide young-growth management to accelerate attainment of old-growth characteristics. (See below).

Wildlife Habitat Restoration: WILD22

- A. Early seral forest stands will be managed for purposes of wildlife habitat development. Allow techniques such as thinning, pruning, and planting to accelerate development of advanced seral stand structure including maintenance of shrub and forb understory.

SEMI-REMOTE RECREATION

Land Use Designation SM

Goals

To provide predominantly natural or natural-appearing settings for semi-primitive types of recreation and tourism and for occasional enclaves of concentrated recreation and tourism facilities.

To provide opportunities for a moderate degree of independence, closeness to nature, and self-reliance in environments requiring challenging motorized or non-motorized forms of transportation.

Objectives

Manage recreation and tourism use and activities to meet the levels of social encounters, on-site developments, methods of access, and visitor impacts indicated for the Semi-primitive Recreation Opportunity Spectrum classes. Enclaves of concentrated recreation and tourism developments within the Land Use Designation or management activities in adjacent Land Use Designations may cause the ROS setting to become Rural.

Determine on a case-by-case basis whether roads, trails, and other areas should be closed to motorized recreation activities. If so, incorporate into Off-Highway Vehicle (OHV) plans. If not, the use of boats, aircraft, and snowmachines for traditional activities is allowed.

Permit small-scale, rustic recreation and tourism facilities, and occasional enclaves of concentrated recreation and tourism facilities.

Apply the Partial Retention Visual Quality Objective to any developments, facilities, or structures.

Fish enhancement and wildlife habitat improvement may occur.

Desired Future Condition

Areas in the Semi-Remote Recreation Land Use Designation are characterized by generally unmodified natural environments. Ecological processes and natural conditions are only minimally affected by past or current human uses or activities. Users have the opportunity to experience a moderate degree of independence, closeness to nature, solitude and remoteness, with some areas offering motorized opportunities and others non-motorized opportunities (except for the traditional uses of boats, aircraft, and snowmachines). Interactions between users are infrequent. Facilities and structures may be minimal or occasionally may be larger in scale, but will be rustic in appearance, or in harmony with the natural setting.

At-a-Glance . . .

Facilities

Administrative and other authorized structures are located and designed to reduce adverse effects on recreation and tourism opportunities.

Fire

All wildfires are suppressed using a suppression action that minimizes fire suppression costs and resource damage. Management-ignited prescribed

fire, to improve natural ecological processes, is not presently used, but may be considered in the future.

Fish	Aquatic biological habitat productivity is maintained or improved. Fisheries enhancement projects may occur.
Forest Health	Insect and disease management measures consistent with this Land Use Designation may be implemented to protect the recreational settings and adjacent resources.
Heritage resources	Locate, evaluate, and protect significant heritage resources. Interpretation may be provided.
Lands	Uses consistent with the Semi-remote Land Use Designation are allowed.
Minerals	Lands are open to mineral entry. Mineral activities should be compatible with the objectives of this Land Use Designation to the extent feasible. Mitigation of effects on recreation, tourism, and scenery are emphasized.
Recreation/Tourism	The setting is managed to provide a natural-appearing environment generally remote from human developments. Recreation and tourism use is managed to provide low to moderate numbers of encounters between visitors except in occasional enclaves of concentrated recreation and tourism use or facilities. In some areas, motorized recreation opportunities are provided and traditional motorized access may occur. Small scale, rustic recreation and tourism facilities such as recreation cabins, shelters, and docks, and occasional enclaves of concentrated recreation and tourism facilities may exist.
Soil and Water	Land use activities are carried out in a manner which avoids serious and adverse impacts to soil and water quality.
Subsistence	Subsistence activities occur in accordance with Federal and state regulations and may be seasonally prevalent throughout this Land Use Designation.
Timber	Forested lands are classified as unsuitable for timber production. Silvicultural treatment is conducted only to maintain or improve the desired recreation opportunity or to control insects and disease. Salvage, although the exception in this Land Use Designation, is limited to the results of catastrophic events, and must consider Semi-Remote Recreation LUD objectives. Personal use wood gathering from beach log salvage is fully compatible with this Land Use Designation. Personal use wood cutting is allowed based on local determination.
Transportation	The transportation system within the area may include foot or ski trails, and trails for motorized recreation. Existing low standard roads may be managed for high clearance and off-highway vehicles subject to off-highway vehicle management plans. New roads are generally not constructed in this LUD except to link existing roads or to access adjacent LUD's. Location and design of roads required to access adjacent Land Use Designations should consider compatibility with or improvement to the semi-primitive recreation opportunities. Roads and trails may be closed or seasonally restricted.

Scenery

All activities are integrated in such a way that they are subordinate to the characteristic landscape. Rehabilitation techniques may be used to restore disturbed landscapes to be compatible with the semi-primitive setting. The Visual Quality Objective is Partial Retention.

Wildlife

Habitat management emphasizes maintenance of late successional stages, although early to middle successional stages may occur. Habitat improvement may occur.

Apply the following Forest-wide Standards & Guidelines located in Chapter 4:

RESOURCE	SECTION	SUB-SECTIONS	PAGE
AIR	AIR	All	4-2
BEACH AND ESTUARY FRINGE	BEACH1 BEACH2	All I,II(A-G,N)	4-3
BIODIVERSITY	BIO	I(A:1-5;11-14)	4-7
FACILITIES	FAC	All	4-9
FIRE	FIRE	All	4-10
FISH	FISH	All	4-12
FOREST HEALTH	HEALTH	All	4-18
HERITAGE RESOURCES	HER	All	4-19
KARST AND CAVE RESOURCES	KARST,CAVES	All	4-23
LANDS	LAND	All	4-26
LAW ENFORCEMENT	LAW	All	4-39
MINERALS AND GEOLOGY	MG11, MG12	All II-VII	4-40
RECREATION AND TOURISM	REC111,REC112,REC122	All	4-42
RIPARIAN	RIP1,RIP2 RIP3	All I,II(A-E)	4-61
RURAL DEVELOPMENT	RUR	All	4-80
SCENERY	VIS1,12 VIS11	All I,II(B)	4-81
SOIL AND WATER	S&W	All	4-89
SUBSISTENCE	SUB	All	4-93
THREATENED, ENDANGERED, SENSITIVE	TE&S	All	4-95
TIMBER	TIM111,111-1 TIM114	All VIII	4-101
TRAILS	TRAI	All	4-112
TRANSPORTATION	TRAN111,122,212,22,23 TRAN214	All I(A,B,D-F);II-V	4-115
WETLANDS	WET	All	4-123
WILDLIFE	WILD112 WILD22 WILD23	I-III; V-VIII; IX(A:1-7,9-10); X-XV I(A:1;B) All	4-124

Apply the following Land Use Designation Standards & Guidelines:

FACILITIES

Facilities Improvements: FAC2

- A. Design and locate administrative and non-recreation structures to reduce adverse effects on recreation and tourism opportunities.

FIRE

Fire Suppression: FIRE12

Suppression Action

- A. All wildfires will be suppressed using the suppression option identified in the Southeast Alaska/Prince William Sound Fire Management Plan. An Escaped Fire Situation Analysis (EFSA) of expected fire behavior, time of year, and locations with respect to private land and adjacent Land Use Designations, may lead to a lower strategy. If an EFSA discloses no adverse effects and it is more cost-efficient, the lower strategy will be used.
- B. Suppression tactics will emphasize the least possible disturbance or evidence of human presence.
 - 1. Suppression tactics will avoid human/bear conflicts and existing policy will be emphasized to leave no trash or any other kinds of bear attractants in the area.
 - 2. Rehabilitation of all campsites, suppression lines, and other evidence of human presence will occur as soon as it is safe, but within one year after the fire occurs.
 - 3. Mechanized fireline construction will avoid important wildlife habitat areas such as meadows, bogs, and riparian areas.

Fuel Improvements: FIRE2

Prescribed fire

- A. Management ignitions, although they are not presently used in this land use designation, may be used as an acceptable means of fuels management and wildlife habitat improvement so long as its use is compatible with LUD objectives.
- B. As a general management practice, prescribed natural fire will not be used in this Land Use Designation. Should it become necessary to consider the use of prescribed natural fire, the Forest Plan must be amended to analyze, justify, and approve prescribed natural fire programs. (Consult FSM 5142.)

FOREST HEALTH

Forest Health Management: HEALTH1

- A. Insect and disease management measures consistent with this Land Use Designation may be implemented to protect recreation and tourism opportunities and adjacent resources.

Forest Insect and Disease Survey and Inventory: HEALTH2

- A. Survey and inventory visible outbreaks.

HERITAGE

Heritage Resource Activities: HER

Enhancement

- A. Heritage resources are available for recreational, scenic, scientific, educational, conservation, and historic uses.
 - 1. Provide interpretive information concerning heritage resources located within this Land Use Designation to users in the form of exhibits and publications located outside of this Land Use Designation.
 - 2. Heritage resources are available for scientific studies that are consistent with the semi-primitive settings and activities, and heritage resource management objectives for the specific site.

Inventory/Evaluation

- A. Develop priorities and schedule management activities to implement heritage resource inventory, evaluation, protection, and interpretation within this Land Use Designation.
 - 1. Identify, classify, and evaluate known heritage resources.
 - 2. Identify heritage properties to be nominated to the National Register of Historic Places.
 - 3. Identify heritage properties that require stabilization or other protective measures.
 - 4. Identify opportunities for interpretation of heritage resources for public education and enjoyment.

KARST AND CAVES

Cave Management Program: CAVE

- A. Identify opportunities for interpretation of caves for public education and enjoyment. Interpretation may occur inside or outside of this LUD.

LANDS

Special Use Administration (Non-Recreation): LAND122

- A. Permit only facilities and uses consistent with Semi-remote Recreation Land Use Designation objectives.
- B. This Land Use Designation represents a Transportation and Utility System (TUS) "Window" and provides opportunities for the future designation and location of Transportation and Utility sites.

MINERALS GEOLOGY

Minerals and Geology Administration: MG2

Forest Lands Open to Mineral Entry

- A. Forest lands within this Land Use Designation are open to mineral exploration and development.
- B. Assure prospectors and claimants their right of ingress and egress granted under the General Mining Law of 1872, ANILCA, and National Forest Service Mining Regulations 36 CFR 228.
- C. Permit reasonable access to mining claims in accordance with the provisions of an approved Plan of Operations.

Plan of Operations

- A. Encourage use of state-of-the-art techniques for developing minerals to reduce impacts to the extent feasible.
- B. Apply appropriate Transportation Forest-wide Standards and Guidelines to the location and construction of mining roads and facilities.
- C. Manage mineral exploration and development activities to be compatible with the emphasis of this Land Use Designation. Apply the following management practices to reduce resource impacts.
 - 1. Manage mineral activities to maintain the present and continued productivity of anadromous fish and other foodfish habitat to the maximum extent feasible. (Consult ANILCA, Sec. 505 (a).)
 - 2. When locating drill rigs and pumps, roads, rock quarries, structures, and marine transfer facilities, take maximum advantage of topographic and vegetative screening.
 - 4. Ensure that vegetation removed from the project area is hauled away, buried, burned, or scattered when such vegetation is located adjacent to Visual Priority Travel Routes and Use Areas.
 - 5. Minimize the scale of spoil/disposal areas in relation to the surrounding landscape as seen from Visual Priority Travel Routes and Use Areas.
 - 6. Approve use of colors that simulate those found in the characteristic landscape. Avoid the use of reflective materials in project facilities.
 - 7. Approve reclamation plans in which minerals activities leave a natural-appearing condition.
 - 8. Ensure that landform modifications simulate naturally-occurring forms.
 - 9. Ensure that disturbed areas are revegetated in accordance with project plans.

RECREATION AND TOURISM

Recreation Use Administration: REC122

Recreation Management and Operations

- A. Provide for Semi-primitive Recreation Opportunity Spectrum (ROS) settings. Enclaves of concentrated recreation and tourism developments or management activities in adjacent Land Use Designations may cause the ROS setting to become Roaded Natural, Roaded Modified, or Rural.
- B. Determine on a case-by-case basis whether roads, trails, and other areas should be closed to motorized recreation activities; incorporate determinations in Off-Highway Vehicle (OHV) Plans.
 - 1. Manage roads for traffic service level D except when level C roads provide access to or through the LUD. Occasional enclaves of concentrated recreation and tourism developments could warrant higher service levels in those areas.
- C. Where roads, trails, and other areas are closed to motorized recreation activities or vehicles, provide Semi-primitive Non-motorized recreation opportunities.
 - 1. Permit use of snowmachines, motorboats, and aircraft for traditional activities.
- D. Permit small scale, rustic recreation and tourism facilities such as recreation cabins, shelters, docks, and enclaves of concentrated development.

1. During all construction activity:
 - *Minimize site modification.
 - *Minimize vegetation clearing adjacent to the site.
 - *Use colors found in the natural environment.

Recreation Special Uses

- A. Major and minor developments are compatible with this LUD. Refer to the Recreation and Tourism Forest-wide Standards and Guidelines.

SCENERY

Scenery Operations: VIS1

- A. Design resource activities to remain visually subordinate to the characteristic landscape. Activities may repeat form, line, color or texture common to the landscape. New form, line, color, or texture will be subordinate to the characteristic landscape.
 1. Apply Forest-wide Standards and Guidelines for the Partial Retention Visual Quality Objective.
 2. Exceptions for small areas of non-conforming developments, such as recreation sites, may be considered on a case-by-case basis (see the Recreation and Tourism Standards and Guidelines in this prescription).
- B. Rehabilitation techniques may be used to restore disturbed landscapes to be compatible with the semi-primitive setting.

TIMBER

Timber Resource Planning: TIM112

- A. Forested land is classified as unsuitable for timber production.
- B. The following types of uses may be authorized when they meet Land Use Designation objectives.
 - * Removal or use of trees for improvement of recreation and tourism opportunities, such as clearing for vistas, campsites, or trails.
 - * Removal, or use of trees cut as a part of some other authorized use within this Land Use Designation. For example, clearing for a fish ladder or road.
 - * Trees may be cut for use in construction and maintenance of authorized structures when it is not feasible to obtain the necessary material from outside this Land Use Designation.
 - * Personal use wood gathering from beach log salvage is fully compatible with this Land Use Designation. Personal use wood cutting is allowed based on local determination.

Timber Sale Preparation: TIM114

- A. Salvage of dead and down material, although the exception, will be limited to the result of catastrophic events (such as windthrow.) Conduct site-specific analysis to determine if salvage is compatible with objectives of this Land Use Designation.

TRANSPORTATION

Transportation Operations: TRAN1

- A. Where Semi-primitive Motorized recreation opportunities are emphasized, existing low standard roads are generally managed for use by high clearance or off-highway vehicles, snowmobiles or motorcycles subject to an approved Off-Highway Vehicle Management Plan.

Generally, new roads are not constructed in this area, except to link existing roads or provide access to adjacent Land Use Designations.

1. Limit the design standards of Forest Development Roads to those commensurate with the intended use.
 2. Maintain as necessary to provide passage of planned traffic.
 3. Locate and design new roads to consider semi-primitive recreation opportunities in this Land Use Designation.
- B. Where Semi-primitive Non-motorized recreation opportunities are emphasized, provide foot or cross-country ski trails. Roads and trails may be closed or seasonally restricted. Close or obliterate existing roads except for transportation system links.
- C. Roads and trails may be closed or seasonally restricted.

LAND USE DESIGNATION II

Land Use Designation L2

Introduction

Twelve areas were chosen for special management because of their critical importance for fish and wildlife habitat and their high value to tourism and recreation. Specific management criteria for LUD II areas are defined in the Tongass Land Management Plan, completed March 1979, and amended Winter 1985-1986 (pp. 8-9).

Goals

To manage the 12 areas designated in perpetuity as Land Use Designation II (LUD II) by the Tongass Timber Reform Act according to the direction for LUD II areas in the 1979 Tongass Land Management Plan.

To manage these areas in a roadless state to retain their wildland character.

Objectives

Manage recreation and tourism use and activities to meet the levels of social encounters, on-site developments, methods of access, and visitor impacts indicated by the Primitive and Semi-primitive Recreation Opportunity Spectrum classes.

Salvage logging, personal use of wood, water and power development, fish and wildlife habitat improvement, and research facilities will be designed to be compatible with the primitive characteristics of the area.

Desired Future Condition

Areas in this Land Use Designation are characterized by extensive, generally unmodified natural environments, and retain their wildland character. Ecological processes and natural conditions are only minimally affected by past or current human uses or activities. Users have the opportunity to experience a high-to-moderate degree of independence, closeness to nature, solitude and remoteness and may pursue activities requiring self-reliance, challenge, and risk. Interactions between users are infrequent. Recreational facilities and structures are primitive.

At-a-Glance . . .

Facilities	Permanent administrative and recreation facilities may be permitted.
Fire	All wildfires are suppressed using a suppression action that minimizes fire suppression costs and resource damage. Prescribed fire, to improve natural processes, is not presently used, but may be considered in the future.
Fish	Aquatic biological habitat productivity is maintained or improved. Improvements such as fishways, fish hatcheries, or aquaculture sites may be built. Appropriate landscape management techniques are applied in the design

and construction of such improvements to minimize impacts on recreational resources and scenery.

Forest Health	Insect and disease management measures may be implemented to protect resources within LUD II areas and resources in adjacent areas.
Heritage Resources	Locate, evaluate and protect significant heritage resources. Interpretation may be provided.
Lands	Water and power developments are permitted if they can be designed to retain the overall primitive characteristics of this LUD.
Minerals	The LUD is open to mineral exploration and development.
Recreation/Tourism	Use of snowmobiles, motorboats, and aircraft is permitted; however, if use becomes excessive, restrictions may be imposed on a case-by-case basis. Major concentrated recreation facilities are generally excluded.
Scenery	Landscapes are managed to retain a natural-appearing visual condition where activities are not visually evident to the casual observer. The Visual Quality Objective is Retention. Exceptions may be made for authorized activities and improvements may not meet this objective.
Soil and Water	Land use activities are carried out in a manner which avoids serious and adverse impacts to soil and water quality. Watershed improvement may occur.
Subsistence	Subsistence activities occur in accordance with Federal and state regulations and may be seasonally prevalent throughout this LUD.
Timber	Commercial timber harvest is not permitted and forested land in this Land Use Designation is classified as unsuitable for timber production. Timber can be salvaged only to prevent significant damage to other resources. Examples are removal of windfall in an important fish stream or control of an epidemic insect infestation. Personal use of wood is allowed for cabin logs, firewood, float logs, trolling poles, and other similar uses.
Transportation	Roads are only built to serve authorized activities such as mining, power and water developments, aquaculture developments, and transportation needs determined by the State of Alaska, and vital Forest transportation linkages.
Wildlife	Wildlife habitats generally evolve in natural successional stages. Habitat improvement is permitted.

Apply the following Forest-wide Standards & Guidelines located in Chapter 4:

RESOURCE	SECTION	SUB-SECTIONS	PAGE
AIR	AIR	All	4-2
BEACH AND ESTUARY FRINGE	BEACH1 BEACH2	All I,II(A-G,N)	4-3
BIODIVERSITY	BIO	I(A:1-5;11-14)	4-7
FACILITIES	FAC	All	4-9
FIRE	FIRE	All	4-10
FISH	FISH	All	4-12
FOREST HEALTH	HEALTH	All	4-18
HERITAGE RESOURCES	HER	All	4-19
KARST AND CAVE RESOURCES	KARST,CAVES	All	4-23
LANDS	LAND	All	4-26
LAW ENFORCEMENT	LAW	All	4-39
MINERALS AND GEOLOGY	MG11, MG12	All II-VII	4-40
RECREATION AND TOURISM	REC111,REC112,REC122	All	4-42
RIPARIAN	RIP1,RIP2 RIP3	All I,II(A-E)	4-61
RURAL DEVELOPMENT	RUR	All	4-80
SCENERY	VIS1,12 VIS11	All I,II(B)	4-81
SOIL AND WATER	S&W	All	4-89
SUBSISTENCE	SUB	All	4-93
THREATENED, ENDANGERED, SENSITIVE	TE&S	All	4-95
TIMBER	TIM111,111-1 TIM114	All VIII	4-101
TRAILS	TRAI	All	4-112
TRANSPORTATION	TRAN111,122,212,22,23 TRAN214	All I(A,B,D-F);II-V	4-115
WETLANDS	WET	All	4-123
WILDLIFE	WILD112 WILD22 WILD23	I-III; V-VIII; IX(A:1-7,9-10); X-XV I(A:1;B) All	4-124

Apply the following Land Use Designation Standards & Guidelines:

FACILITIES

Administrative Facilities: FAC2

- A. Permanent administrative facilities may be constructed in a manner which blends with the natural character of the area.

FIRE

Fire Suppression: FIRE12

Suppression Action

- A. All wildfires will be suppressed using the suppression option identified in the Southeast Alaska/Prince William Sound Fire Management Plan. An Escaped Fire Situation Analysis (EFSA) of expected fire behavior, time of year, and locations with respect to private land and adjacent land use areas, may lead to a lower strategy. If an EFSA discloses no adverse effects and it is more cost-efficient, the lower strategy will be used.
- B. Suppression tactics will emphasize the least possible disturbance or evidence of human presence.
 - 1. Suppression tactics will avoid human/bear conflicts and existing policy will be emphasized to leave no trash or any other kinds of bear attractants in the area.
 - 2. Rehabilitation of all campsites, suppression lines, and other evidence of human presence will occur as soon as it is safe, and no longer than one year after the fire occurs.

Fuel Improvements: FIRE2

Prescribed fire

- A. Management-ignited prescribed fire may be used for fuels management, insect and disease protection, and wildlife habitat improvement.
- B. As a general management practice, prescribed natural fire will not be used in this Land Use Designation, although natural ignitions may be used only to perpetuate natural ecological processes. Should it become necessary to consider the use of prescribed natural fire, the Forest Plan must be amended to analyze, justify, and approve prescribed natural fire programs. (Consult FSM 5142.)

FISH

Fish Habitat Planning: FISH112

Fish Enhancement

- A. Improvements such as fishways, fish hatcheries, or aquaculture sites may be built. Appropriate landscape management techniques will be applied in the design and construction of such improvements to reduce impacts on recreational resources and scenery.

FOREST HEALTH

Forest Health Management: HEALTH1

- A. Insect and disease management measures consistent with this Land Use Designation may be implemented to protect these and adjacent resources.

Forest Insect and Disease Survey and Inventory: HEALTH2

- A. Survey and inventory visible outbreaks.

HERITAGE

Heritage Resource Activities: HER

Enhancement

- A. Heritage resources are available for recreational, scenic, scientific, educational, conservation, and historic uses.
 - 1. Heritage resources are available for scientific studies that are consistent with the primitive settings and activities, and heritage resource management objectives for the specific site.

Inventory/Evaluation

- A. Develop priorities and schedule management activities to implement heritage resource inventory, evaluation, protection, and interpretation within this Land Use Designation.
 - 1. Identify, classify, and evaluate known heritage resources.
 - 2. Identify heritage properties to be nominated to the National Register of Historic Places.
 - 3. Identify heritage properties that require stabilization or other protective measures.
 - 4. Identify opportunities for interpretation of heritage resources for public education and enjoyment.

KARST AND CAVES

Cave Management Program: CAVE

- A. Identify opportunities for interpretation of caves for public education and enjoyment. Interpretation may occur inside or outside of this LUD.

LANDS

Special Use Administration (Non-Recreation): LAND122

- A. Water and power developments are permitted if they can be designed to retain the overall primitive characteristics of the allocated area.
- B. Except as authorized by the Tongass Timber Reform Act (TTRA), permit only those activities which are consistent with the wildland character of the area.
- C. This Land Use Designation represents a Transportation and Utility System (TUS) "Avoidance Area." Transportation and utility sites or corridors may be located within this Land Use Designation only after an analysis of potential TUS corridors has been completed and no feasible alternatives exist outside this LUD.

MINERALS GEOLOGY

Minerals and Geology Administration: MG12

Forest Lands Open to Mineral Entry

- A. Forest lands within this Land Use Designation are open to mineral exploration and development.
- B. Assure prospectors and claimants their right of ingress and egress granted under the General Mining Law of 1872, ANILCA, and National Forest Service Mining Regulations 36 CFR 228.
- C. Permit reasonable access to mining exploration and development in accordance with the provisions of an approved Plan of Operations.

Plan of Operations

- A. Encourage use of state-of-the-art techniques for developing minerals to reduce impacts to the extent feasible. Include mitigation measures that are compatible with the scale of proposed development and commensurate with potential resource impacts.
- B. Apply appropriate Transportation Forest-wide Standards and Guidelines to the location and construction of mining roads.
- C. Manage mineral exploration and development activities to be compatible with the emphasis on maintaining the wildland character of the LUD II Land Use Designation. Apply the following management practices to reduce resource impacts.
 - 1. Manage mineral activities to maintain the present and continued productivity of anadromous fish and other foodfish habitat to the maximum extent feasible. (Consult ANILCA, Section 505 (a).)
 - 2. Manage mineral activities to maintain the present and continued productivity of wildlife habitat to the extent feasible.
 - 3. Take maximum advantage of topographic and vegetative screening when locating drill rigs and pumps, roads, rock quarries, structures, and marine transfer facilities.
 - 4. Discourage use of motorized surface vehicles, except as provided for in ANILCA, Section 1110(b), which assures adequate and feasible access for economic and other purposes.
 - 5. Locate material sites and marine transfer facilities outside this Land Use Designation, if reasonable alternatives exist.
 - 6. Ensure that vegetation removed from the project area is hauled away, buried, burned or scattered when located adjacent to Visual Priority Travel Routes and Use Areas.
 - 7. Minimize the scale of spoil/disposal areas in relation to the surrounding landscape as seen from sensitive viewpoints.
 - 8. Approve use of colors that simulate those found in the characteristic landscape. Avoid use of reflective materials in project facilities.
 - 10. Approve reclamation plans in which minerals activities leave a natural-appearing condition.
 - 11. Ensure that landform modifications simulate naturally-occurring forms.
 - 12. Ensure that disturbed areas are revegetated in accordance with project plans.

RECREATION AND TOURISM

Recreation Use Administration: REC122

Recreation Management and Operations

- A. This Land Use Designation generally provides Primitive and Semi-primitive recreation opportunities (ROS) requiring wildland character.
 - 1. Primitive recreation facilities, such as recreation cabins, boat docks, moorings and trails may be constructed and maintained.
- B. Major concentrated recreation facilities, such as development scale IV and V (those heavily-modified or with a high degree of site modification) will generally be excluded.
- C. If a transportation link is constructed through this Land Use Designation, recreation facilities needed to serve the traveling public, to reduce impacts of recreation use to adjacent wildlands, or to provide

interpretation, may be constructed in proximity to the transportation link.

Recreation Special Uses

- A. Major developments are generally not consistent with the objectives of the Land Use Designation. Development proposals require scrutiny of the magnitude and scope for LUD conformance. Refer to the Recreation and Tourism Forest-wide Standards and Guidelines.
- B. Minor developments may be compatible with the LUD objectives depending on the scope, purpose, and magnitude of the proposal. Each proposal will be evaluated on a case-by-case basis. Refer to the Recreation and Tourism Forest-wide Standards and Guidelines.

SCENERY

Scenery Operations: VIS1

- A. Landscapes are managed to retain a natural-appearing visual condition, where activities are not visually evident to the casual observer.
 - 1. Apply Forest-wide Standards and Guidelines for the Retention Visual Quality Objective.
 - 2. Some authorized activities and improvements may not meet the Retention Visual Quality Objective, based on project analysis. However, seek to mitigate visual impacts through location, siting, design, material, and coloring of structures.

TIMBER

Timber Resource Planning: TIM112

- A. Forested land is classified as unsuitable for timber production. Commercial timber harvesting is not permitted.
- B. Timber can be salvaged only to prevent significant damage to other resources. Examples are removal of windfall in an important fish stream or control of epidemic insect infestations.
- C. Personal use of wood is allowed for cabin logs, fuelwood, float logs, trolling poles, and other similar uses.

TRANSPORTATION

Transportation Operations: TRAN1

- A. Existing roads are generally closed to highway vehicular use. Any proposed roads will use the following guidelines.
 - 1. Allow vital Forest transportation system linkages including roads and transfer facilities. Vital Forest transportation system linkages refer to necessary additions to the permanent road network. Such linkages may be built through LUD II areas when either:
 - 1) no other feasible routes exist to access adjacent Land Use Designations, or 2) when it can be demonstrated that the routing through the LUD II area is clearly environmentally preferable and site-specific mitigation measures can be designed to minimize the impact of the road on the surrounding LUD II area. A clear need to build such linkages must be demonstrated through a comparative analysis of feasible transportation alternatives through the NEPA process and must be approved by the Forest Supervisor, in consultation with the other Tongass Forest Supervisors.

2. Roads, other than vital transportation linkages, will not be built except to serve authorized activities such as mining, power and water developments, aquaculture developments, or transportation needs determined by the State of Alaska (also the Transportation and Utility Systems LUD).

WILDLIFE

Wildlife Habitat Planning: WILD112

- A. Wildlife habitats will generally evolve in natural successional stages. Habitat improvement is permitted.

WILD RIVER

Land Use Designation WR

Goals

To manage designated river segments according to the "Wild and Scenic Rivers Act (Public Law 90-542), "National Wild and Scenic Rivers System; Final Revised Guidelines for Eligibility, Classification, and Management of River Areas" (Federal Register Volume 47, Number 173, 1982), and direction in Forest Service Manuals and Handbooks.

To maintain, enhance and protect the free-flowing character and outstandingly remarkable values of rivers and river segments designated as Wild Rivers and included in the National Wild and Scenic Rivers System.

To maintain Wild Rivers in a natural, free-flowing, unmodified condition, and provide recreation and tourism opportunities affording a high degree of independence, closeness to nature and self-reliance.

To manage recommended Wild River segments to maintain their outstandingly remarkable values and classification eligibility until Congress designates the segments or decides not to designate them.

Objectives

Manage Wild River segments to maintain an enduring wildland and free-flowing river resource, while providing for access and use consistent with the Wild and Scenic Rivers Act and the Alaska National Interest Lands Conservation Act (ANILCA).

Withdraw Wild River segments from mineral entry when designated by Congress, subject to valid existing rights, and classify forested lands as unsuitable for timber production.

Manage recreation and tourism use and activities to meet the levels of social encounters, on-site developments, methods of access and visitor impacts indicated for the Primitive and Semi-Primitive Recreation Opportunity Spectrum classes.

Apply the Retention Visual Quality Objective within the river corridor.

Desired Future Condition

Wild Rivers and river segments are in a natural, free-flowing, and undisturbed condition. Ecological processes and changes predominate. The outstandingly remarkable values for which the river was designated remain outstanding and remarkable. Recreation users have the opportunity for primitive and semi-primitive experiences, solitude and remoteness in a natural setting. Interactions between users are infrequent, and evidence of human activities is minimal. Facilities and structures are rustic in appearance and promote primitive recreation and tourism experiences.

At-a-Glance . . .

Facilities	Administrative facilities are generally not constructed in this land use designation.
Fire	All wildfires are suppressed using a suppression action that minimizes fire suppression costs and resource damage. Suppression and rehabilitation are used to protect the free-flowing character and the outstandingly remarkable values of Wild Rivers.
Fish	Indigenous species are maintained. Habitat improvement projects, consistent with maintaining the free-flowing water, the naturally-appearing condition, and the outstandingly remarkable values for which the river was designated, may be allowed.
Forest Health	Forest insect and disease management measures consistent with this Land Use Designation may be implemented to protect the character and outstandingly remarkable values of the Wild Rivers.
Heritage Resources	Locate, evaluate and protect significant heritage resources. Interpretation may be provided.
Minerals	When designated by Congress, Wild River segments are withdrawn from mineral entry within 1/4 mile of the ordinary high water mark on each side of the river, subject to valid existing rights. Reasonable access is permitted.
Recreation/Tourism	Use is managed to perpetuate essentially natural biophysical conditions. Motorized recreation use is limited to traditional access methods. Forest Service public use cabins, boat and/or floatplane landings, and other primitive recreation and tourism facilities may be present.
Scenery	Landscapes are managed to retain a natural-appearing visual condition where activities are not visually evident to the casual observer.
Soil and Water	Water quality and flow are maintained to protect the river's outstandingly remarkable values.
Subsistence	Subsistence opportunities are perpetuated consistent with the protection of the outstandingly remarkable values identified for the river.
Timber	Forested land is classified as unsuitable for timber production. Timber harvest is prohibited. Silvicultural treatments are limited to control of insects and disease. On the portion of the river influenced by tidal action, taking of personal use wood is limited to beach logs which can be removed without roads or the use of vehicles on uplands. The cutting of down trees in rivers (sweepers) and the removal of trees from the banks is generally not compatible with the Wild River management objectives.
Transportation	Infrequent trails and trail bridges may be present. Generally, no roads are present and roads that are present are closed to public use.
Wildlife	Habitat projects are designed to emulate natural conditions and appearance.

Apply the following Forest-wide Standards & Guidelines located in Chapter 4:

RESOURCE	SECTION	SUB-SECTIONS	PAGE
AIR	AIR	All	4-2
BEACH AND ESTUARY FRINGE	BEACH1,BEACH2	None	4-3
BIODIVERSITY	BIO	I(A:1-5;12-14)	4-7
FACILITIES	FAC23	All	4-9
FIRE	FIRE	All	4-10
FISH	FISH111,23 FISH112	All I-V;VI(C)	4-12
FOREST HEALTH	HEALTH1	I(B:1,C)	4-18
HERITAGE RESOURCES	HER	All	4-19
KARST AND CAVE RESOURCES	KARST,CAVE	All	4-23
LANDS	LAND	All	4-26
LAW ENFORCEMENT	LAW	All	4-39
MINERALS AND GEOLOGY	MG11 MG12	All I;III-VII	4-40
RECREATION AND TOURISM	REC111 REC112 REC122	All I,II(A-C),III I-III;VI-,VII	4-42
RIPARIAN	RIP1 RIP2 RIP3	I(A:1-7,10) All I,II(A-E)	4-61
RURAL DEVELOPMENT	RUR	All	4-80
SCENERY	VIS1 VIS11 VIS12	All I,II(A) II-III	4-81
SOIL AND WATER	S&W1111,112,2 S&W112	All I	4-89
SUBSISTENCE	SUB	All	4-93
THREATENED, ENDANGERED, SENSITIVE	TE&S	All	4-95
TIMBER	TIM111,111-1 TIM114	All VIII(D)	4-101
TRAIL	TRAI1 TRAI2	I(A-E;F(1,3,5,6) All	4-112
TRANSPORTATION	TRAN	None	4-115
WETLANDS	WET	All	4-123
WILDLIFE	WILD112 WILD22 WILD23	I-III;V;VI(A,B);VII,VIII; IX(A:1-7;10);X-XII;XIII) I(A:1,B) All	4-124

Apply the following Land Use Designation Standards & Guidelines

FACILITIES

Facilities Improvements: FAC2

- A. Avoid construction of new administrative facilities unless needed for administration of river resources and users. If needed, facilities will be rustic and kept to a minimum.

FIRE

Fire Suppression: FIRE12

Suppression Action

- A. All wildfires will be suppressed using the suppression option identified in the Southeast Alaska/Prince William Sound Fire Management Plan. An Escaped Fire Situation Analysis (EFSA) of expected fire behavior, time of year, and locations with respect to private land and adjacent LUD's, may lead to a lower strategy. If an EFSA discloses no adverse effects and it is more cost-efficient, the lower strategy will be used.
- B. Suppression tactics will emphasize the least possible disturbance or evidence of human presence.
 - 1. Use of mechanized equipment will be addressed in the management plan developed for each river.
 - 2. Suppression tactics will avoid human/bear conflicts and existing policy will be emphasized to leave no trash or any other kinds of bear attractants in the area.
 - 3. Rehabilitation of all campsites, suppression lines, and other evidence of human presence will occur as soon as it is safe, but within one year after the fire occurs.

Fuel Improvements: FIRE2

Prescribed fire

- A. Management-ignited prescribed fire may be used to emulate natural ecological processes.
- B. As a general management practice, prescribed natural fire will not be used in this Land Use Designation. Should it become necessary to consider the use of prescribed natural fire, the Forest Plan must be amended to analyze, justify, and approve prescribed natural fire programs. (Consult FSM 5142.)

FISH

Fish Habitat Planning: FISH112

Fish Enhancement

- A. Fish enhancement projects may be allowed after considering the following during project planning:
 - 1. The primitive character of the area can be maintained. Realize that an enhanced fishery could result in increased recreation and tourism use.
 - 2. Effects on Wild River ecosystems due to the introduction of species not indigenous to the watershed.
 - 3. If a naturally-appearing free-flowing condition can be maintained.
 - 4. Effects on the outstandingly remarkable values for which the river was designated.

5. The appropriateness of structures both in type and scale to the primitive and natural character of the area.
6. Ability to meet a Tetention Visual Quality Objective.

Fish Habitat Improvement: FISH22

- A. Use construction techniques which are consistent with the ROS setting.
 1. Land-disturbing activities necessary for construction will be temporary.
 2. Design development to minimize impact on the primitive character of the corridor.
- B. Weirs or other stream obstructions are not permitted.

FOREST HEALTH

Forest Health Management: HEALTH1

- A. Implement insect and disease management measures consistent with this LUD to protect the character and values of Wild Rivers.

Forest Insect and Disease Survey and Inventory: HEALTH2

- A. Survey and inventory visible outbreaks.

HERITAGE

Heritage Resource Activities: HER

Enhancement

- A. Heritage resources are available for scientific study to the extent that the study is consistent with: 1) the concept of Wilderness; 2) the intent of the Wilderness Act; and, 3) heritage resource management objectives.
- B. Heritage resources are available for recreational, scenic, scientific, educational, conservation, and historic uses, consistent with Wild River management.
 1. Generally, provide interpretive information concerning heritage resources to users in the form of exhibits and publications outside the Wild River corridor.

Inventory/Evaluation

- A. Develop priorities and schedule management activities to implement heritage resource inventory, evaluation, protection, and interpretation within this Land Use Designation.
 1. Identify, classify, and evaluate known heritage resources.
 2. Identify heritage properties to be nominated to the National Register of Historic Places.
 3. Identify heritage properties that require stabilization or other protective measures.
 4. Identify opportunities for interpretation of heritage resources for public education and enjoyment.

KARST AND CAVES Cave Management Program: CAVE

- A. Identify opportunities for interpretation of caves for public education and enjoyment. Interpretation will generally occur outside this LUD.

- B. Manage caves as Class 1 (Sensitive) or Class 3 (Undeveloped) as described in the Karst and Cave Resources Forest-wide Standards and Guidelines.

LANDS

Special Use Administration (Non-Recreation): LAND122

- A. Permit only those uses consistent with management objectives. (Consult the Land and Resource Management Planning Handbook 1909.12, Chapter 8.)
 - 1. Do not authorize water supply dams or major diversions.
 - 2. Do not permit development of hydroelectric power facilities for
 - 1) projects exempted from licensing by the Federal Energy Regulatory Commission or 2) projects on rivers designated through sections 2,3, and 5(a) of the Wild and Scenic Rivers Act. The Forest Service will recommend to FERC that a project on a river found eligible and suitable for inclusion in Wild and Scenic Rivers System should not be licensed because it is inconsistent with the purposes for which the National Forest was created or acquired and, if necessary, impose conditions on any license issued for a project on that river that fully protect its outstandingly remarkable characteristics and free-flowing nature.
 - 3. Maintain the natural appearance and primitive character of the river area. Do not authorize flood control dams, levees, or similar structures, in the channel or river corridor.
 - 4. Do not authorize new structures that would have a direct adverse effect on river values.
 - 5. Transportation and utility corridors will be allowed in accordance with ANILCA, Title XI. This Land Use Designation represents a Transportation and Utility Systems (TUS) "Avoidance Area". Transportation and utility sites or corridors may be located within this Land Use Designation only after an analysis of potential TUS corridors is completed and no feasible alternative exists outside this LUD.
 - 6. Allow motorized access in accordance with ANILCA Sections 811 and 1110(b).

Land Ownership Administration: LAND123

- A. Acquire private inholdings in the river corridor as opportunities arise.

MINERALS GEOLOGY

Minerals and Geology Resource Administration: MG12

Wild Rivers

- A. When designated by Congress, Forest lands within 1/4 mile of the river are withdrawn from mineral entry subject to valid existing rights.
- B. Permit reasonable access to valid existing claims in accordance with the provisions of an approved Plan of Operations.

Plan of Operations

- A. Encourage use of state-of-the-art techniques for developing minerals to reduce impacts to Wild Rivers to the extent feasible. Include mitigation measures that are compatible with the scale of proposed development and commensurate with potential resource impacts.

- B. Apply appropriate Transportation Forest-wide Standards and Guidelines to the location and construction of mining roads and facilities.
- C. Manage mineral activities on valid existing claims to be compatible with the emphasis of this Land Use Designation. Apply the following management practices to reduce resource impacts:
 - 1. Manage mineral activities to maintain the present and continued productivity of anadromous fish and other foodfish habitat to the maximum extent feasible. (Consult ANILCA, Section 505(a).)
 - 2. Take maximum advantage of topographic and vegetative screening when locating drill rigs and pumps, roads, rock quarries, structures, and marine transfer facilities.
 - 3. Prohibit use of motorized surface vehicles, except as provided in ANILCA, Section 1110(b), which assures adequate and feasible assess for economic and other purposes.
 - 4. Locate material sites and marine transfer facilities outside this Land Use Designation if reasonable alternatives exist.
 - 5. Ensure that vegetation removed from the project area is hauled away, buried, burned, or scattered when located adjacent to Visual Priority Travel Routes and Use Areas.
 - 6. Minimize the scale of spoil/disposal areas in relation to the surrounding landscape as seen from Visual Priority Travel Routes and Use Areas.
 - 7. Approve use of colors that simulate those found in the characteristic landscape. Avoid use of reflective materials in project facilities.
 - 8. Apply timing restrictions to instream activities as needed to protect fisheries habitat and mitigate adverse disturbance of stream sediments.
 - 9. Require use of sedimentation traps as needed to mitigate adverse stream sedimentation and meet state and Federal water quality regulations.
 - 10. Approve reclamation plans in which minerals activities leave a natural-appearing condition.
 - 11. Ensure that landform modifications simulate naturally-occurring forms.
 - 12. Ensure that disturbed areas are revegetated in accordance with project plans.

RECREATION AND TOURISM

Recreation Use Administration: REC122

Recreation Management and Operations

- A. To the degree consistent with the overall purposes of designation, provide primitive wildland recreation opportunities which reflect the ecological, historical, and sociological conditions found within the River corridor and adjacent lands.
- B. Provide for Primitive and Semi-primitive ROS experience opportunities and activities throughout the River corridor. Protect the integrity of river resources through integrated project planning and implementation.
 - 1. Manage recreation and tourism use in a manner that is compatible with the long-term objectives of this Land Use Designation.

- C. Manage recreation and tourism use and activities to meet the appropriate levels of social encounters, on-site development, methods of access, and visitor impacts indicated for the ROS settings. (Consult FSH ROS Handbook.)
- D. Minor, rustic, recreation and tourism facilities, including public recreation cabins, floatplane and boat docks, trails and trail bridges may be constructed in the river corridor.

Wild River Management

- A. Manage all designated Wild River segments to maintain an enduring wildland and free-flowing river resource, while providing for access and use consistent with the purposes of the Wild and Scenic Rivers Act, as amended, and the Alaska National Interest Lands Conservation Act (ANILCA) of 1980 (P.L. 96-487). Traditional activities and practices authorized by ANILCA will be regulated or restricted only where it is determined that the effects of continued or expanded use is likely to cause one or more of the following:
 - 1. The degradation of the long-term successional changes in wildland and water ecosystems. Adequate determination of the cumulative effects of activities and equipment use must be demonstrated as well as site-specific or singular effects.
 - 2. Be detrimental to the natural dynamics of the composition or structure of wildland and water ecosystems.
 - 3. Be detrimental to identified objects of heritage, historic, prehistoric, and scientific interest.
 - 4. Be detrimental to the ROS setting conditions or where the cumulative effects of various activities are likely to become detrimental to those settings.
 - 5. A specific use is not in accordance with applicable law.
- B. Encourage and enlist public and private sector interest groups to work together in meeting Wild River management objectives. Emphasize programs which help to educate the public in the appropriate conduct of activities and uses within Wild River corridors.

Recreation Special Uses

- A. Major developments are illegal or not consistent with agency policy and regulations. Refer to the Recreation and Tourism Forest-wide Standards and Guidelines.
- B. Minor developments may be compatible with the LUD objectives depending on the scope, purpose, and magnitude of the proposal. Proposals will be evaluated on a case-by-case basis. Refer to the Recreation and Tourism Forest-wide Standards and Guidelines.

SCENERY

Scenery Operations: VIS1

- A. Landscapes are managed to retain a natural-appearing visual condition, where activities are not visually evident to the casual observer.
 - 1. Apply the Forest-wide Standards and Guidelines for the Retention Visual Quality Objective to all areas within the river corridor. The area adjacent to the corridor is managed according to the guidelines of the adjacent LUD.

2. Low visual-impact recreation and tourism facilities, cabins, infrequent fish or wildlife management activities, and other authorized structures which are compatible with the primitive character of the corridor may be acceptable and should be considered on a case-by-case basis (also see the Recreation and Tourism Standards and Guidelines in this prescription).

SOIL AND WATER

Watershed Resource Improvements: S&W2

- A. Undertake watershed improvements within 1/4 mile each side of the river only where deteriorated soil or hydrologic conditions create a threat to the values for which the river is managed. Use, whenever possible, indigenous plant species and materials in implementing land treatment measures to protect or improve the quality and/or quantity of the water resource or when stabilizing or improving the productivity of the soil resource. (Consult FSM 2350 and 2520.)
- B. Maintain water quality and flow to protect the river's outstandingly remarkable values.

SUBSISTENCE

Subsistence: SUB

- A. Allow subsistence activities in Wild River corridors, subject to reasonable regulations to protect Wild River resources.

TIMBER

Timber Resource Planning: TIM112

- A. Forested land is classified as unsuitable for timber production.
- B. Silvicultural treatments are limited to control of insect & disease.
- C. Salvage harvest of dead or down material may occur. Removal of naturally-occurring dead trees in and along the river shoreline, including sweepers extending into the river from the bank should consider the protection of the outstandingly remarkable values and fish habitat in accordance with agreements with the state.
- D. Taking of personal use wood is limited to beach logs on the portion of the river influenced by tidal action. Only beach logs which can be removed without roads or use of vehicles on uplands may be taken.

TRANSPORTATION

Transportation Operations: TRAN1

- A. Permit no new roads, except to access valid mining claims or as TUS corridors in accordance with ANILCA Title XI.
- B. Close roads in this Land Use Designation to public use.
- C. Permit continued existing use of snowmachines and aircraft, however, restrictions may be imposed on a case-by-case basis to protect outstandingly remarkable river values.

WILDLIFE

Wildlife Habitat Improvement: WILD22

- A. Allow wildlife habitat improvements where their principal objective is the protection or restoration of Wild River resources, and enhancement of outstandingly remarkable values.

SCENIC RIVER

Land Use Designation SR

Goals

To manage designated river segments according to the "Wild and Scenic Rivers Act (Public Law 90-542), "National Wild and Scenic Rivers System; Final Revised Guidelines for Eligibility, Classification, and Management of River Areas" (Federal Register Volume 47, Number 173, 1982), and direction in Forest Service Manuals and Handbooks.

To maintain, enhance, and protect the free-flowing character and outstandingly remarkable values of rivers and river segments designated as Scenic Rivers and included in the National Wild and Scenic Rivers System.

To maintain Scenic Rivers in a natural or naturally-appearing, free-flowing condition, and provide recreation and tourism opportunities meeting these expectations.

To manage recommended Scenic River segments to maintain their outstandingly remarkable values and classification eligibility until Congress designates the segments or decides not to designate them.

Objectives

Manage Scenic River segments to maintain an enduring wildland and free-flowing river resource, while providing for access and use consistent with the Wild and Scenic Rivers Act and the Alaska National Interest Lands Conservation Act (ANILCA).

Permit timber harvest on suitable timber lands if adjacent lands are being managed for that purpose, in accordance with the standards and guidelines for the stated Visual Quality Objectives.

Manage recreation and tourism use and activities to meet the levels of social encounters, on-site developments, methods of access, and visitor impacts indicated for the desired Recreation Opportunity Spectrum class, generally semi-primitive.

Permit roads to provide access to, and occasionally cross, the river. Roads, except for short segments, are not visually evident to river users.

Apply the Retention Visual Quality Objective to foreground areas as seen from the river, roads and trails, and Partial Retention for all other seen areas within the river corridor.

Desired Future Condition

Scenic Rivers and river segments are in a generally unmodified, free-flowing condition. Ecological processes and changes may be somewhat affected by human uses. The outstandingly remarkable values for which the river was designated remain outstanding and remarkable. Recreation and tourism users have the opportunity for experiences ranging from Primitive to Roaded Natural in a natural-appearing setting. Resource activities within the river corridor are not visually evident to the casual observer. Interactions between users are moderate. Facilities and structures are rustic in appearance, and promote semi-primitive recreation experiences and/or public safety. A sustained yield of timber may be produced.

At-a-Glance . . .

Facilities	Administrative and recreation facilities are screened from the river.
Fire	Suppression and rehabilitation actions and prescribed fire are used to maintain the free-flowing character and the outstandingly remarkable values of Scenic Rivers.
Fish	Aquatic biologic habitat productivity is maintained or improved. Habitat improvement projects, consistent with maintaining the naturally-appearing free-flowing water and the outstandingly remarkable values for which the river was designated, may be allowed.
Forest Health	Forest health is maintained or improved to protect the character and the outstandingly remarkable values of Scenic Rivers.
Heritage Resources	Locate, evaluate and protect significant heritage resources. Interpretation may be provided.
Lands	To the extent of Forest Service authority, hydroelectric power facilities are not developed. New structures that have an adverse effect on river values are not authorized. National Forest System lands are not disposed of or exchanged. Private lands within the designated river corridor are acquired as opportunities arise. Non-recreation special use structures may occur if they meet Visual Quality Objectives and do not degrade the outstandingly remarkable values.
Minerals	Lands are open to mineral entry. Activities should result in acceptable levels of surface disturbance, sedimentation, air pollution, visual impairment, and meet applicable State Water Quality Standards. Reasonable access is permitted.
Recreation/Tourism	Recreation facilities are allowed. Recreation opportunities range from Roaded Natural to Primitive.
Scenery	As seen from the river, its shorelines, and other Visual Priority Routes and Use Areas, management activities are generally not evident to the casual observer and meet the Retention Visual Quality Objective.
Soil and Water	Maintenance of high water quality and adequate flow to protect the outstandingly remarkable values is emphasized. Soil cover is maintained and slope failure associated with management activities is minimized. Instream structures, artificial bank stabilization, and modification of channels are generally not permitted. The Riparian Forest-wide Standards and Guidelines apply in this area, subject to meeting Visual Quality Objectives.
Subsistence	Subsistence activities occur in accordance with Federal and state regulations and may be seasonally prevalent throughout the area.
Timber	Forested lands are classified as suitable for timber production and contribute to the Allowable Sale Quantity if timber production is allowed in the adjacent Land Use Designation.

Transportation

Roads are generally screened from the river and infrequent road and trail crossings (bridges). Trails paralleling the river are acceptable.

Wildlife

Habitat improvement may occur and is designed to be visually compatible with this Land Use Designation's objectives.

Apply the following Forest-wide Standards & Guidelines located in Chapter 4:

RESOURCE	SECTION	SUB-SECTIONS	PAGE
AIR	AIR	All	4-2
BEACH AND ESTUARY FRINGE	BEACH1,BEACH2	All	4-3
BIODIVERSITY	BIO	All	4-7
FACILITIES	FAC	All	4-9
FIRE	FIRE	All	4-10
FISH	FISH	All	4-12
FOREST HEALTH	HEALTH	All	4-18
HERITAGE RESOURCES	CULT	All	4-19
KARST AND CAVE RESOURCES	KARST,CAVE	All	4-23
LANDS	LAND	All	4-26
LAW ENFORCEMENT	LAW	All	4-39
MINERALS AND GEOLOGY	MG11 MG12	All II-VII	4-40
RECREATION AND TOURISM	REC	All	4-42
RIPARIAN	RIP1,RIP2,RIP3	All	4-61
RURAL DEVELOPMENT	RUR	All	4-80
SCENERY	VIS1,12 VIS11	All I,II(A-C)	4-81
SOIL AND WATER	S&W	All	4-89
SUBSISTENCE	SUB	All	4-93
THREATENED, ENDANGERED, SENSITIVE	TE&S	All	4-95
TIMBER	TIM	All	4-101
TRAILS	TRAI	All	4-112
TRANSPORTATION	TRAN111,122,212,22,23 TRAN214	All I-IV	4-115
WETLANDS	WET	All	4-123
WILDLIFE	WILD112,WILD22,WILD23	All	4-124

Apply the following Land Use Designation Standards & Guidelines:

FACILITIES

Facilities Improvements: FAC2

- A. Administrative and authorized non-recreation facilities should not be evident as viewed from the river and its banks.

FIRE

Fire Suppression: FIRE12

Suppression Action

- A. All wildfires will be suppressed using the suppression option identified in the Southeast Alaska/Prince William Sound Fire Management Plan. An Escaped Fire Situation Analysis (EFSA) of expected fire behavior, time of year, and locations with respect to private land and adjacent land use areas, may lead to a lower strategy. If an EFSA discloses no adverse effects and it is more cost-efficient, the lower strategy will be used.
- B. Suppression tactics are limited only by the standards and guidelines for this , such as soil, water, and scenery.

Fuel Improvements: FIRE2

Prescribed fire

- A. Management-ignited prescribed fire must meet the Retention Visual Quality Objective and meet all soil and water quality standards.
 - 1. All activity fuels will be treated to meet the Retention Visual Quality Objective within one year following timber harvest.
- B. Prescribed natural fire will not be used in this LUD.

FISH

Fish Habitat Planning: FISH112

- A. Provide for public interpretation of fish habitats, habitat enhancement projects, and special fisheries conditions in appropriate Scenic Rivers.
- B. Evaluate fish habitat improvement during project planning by considering:
 - 1. Effects on the free flow of water.
 - 2. Effects on the outstandingly remarkable values for which the river was designated.
 - 3. Weirs and other stream obstructions are discouraged.

FOREST HEALTH

Forest Health Management: HEALTH1

- A. Maintain or improve forest health through insect and disease management practices.
 - 1. Allow sanitation and salvage of infested timber to protect the character and the outstandingly remarkable values of the Scenic River.

Forest Insect and Disease Survey and Inventory: HEALTH2

- A. Survey and inventory visible outbreaks.

HERITAGE

Heritage Resource Activities: HER

Inventory/Evaluation

- A. Develop priorities and schedule management activities to implement heritage resource inventory, evaluation, protection, and interpretation within this Land Use Designation.
 - 1. Identify, classify, and evaluate known heritage resources.
 - 2. Identify heritage properties to be nominated to the National Register of Historic Places.
 - 3. Identify heritage properties that require stabilization or other protective measures.
 - 4. Identify opportunities for interpretation of heritage resources for public education and enjoyment.

KARST AND CAVES

Cave Management Program: CAVE

- A. Identify opportunities for interpretation of caves for public education and enjoyment. Interpretation may occur inside or outside of this LUD.

LANDS

Special Use Administration (Non-Recreation): LAND122

- A. Permit only those uses consistent with management objectives. (Consult the Land and Resource Management Planning Handbook.)
 - 1. Do not authorize water supply dams or major diversions.
 - 2. Do not permit development of hydroelectric power facilities for:
 - 1) projects exempted from licensing by the Federal Energy Regulatory Commission or 2) projects on Rivers designated through sections 2,3, and 5(a) of the Wild and Scenic Rivers Act. The Forest Service will recommend to FERC that a project on a river found eligible and suitable for inclusion in Wild and Scenic Rivers System should not be licensed because it is inconsistent with the purposes for which the National Forest was created or acquired and, if necessary, impose conditions on any license issued for a project on that river that fully protect its outstandingly remarkable characteristics and free-flowing nature.
 - 3. Do not authorize flood control dams and levees.
 - 4. Roads may occasionally bridge river areas. Permit short stretches of conspicuous, or longer stretches of inconspicuous and well-screened, roads or railroads, on a case-by-case basis, depending upon intended use.
 - 5. Do not authorize new structures that would have a direct adverse effect on river values.
 - 6. Allow transportation and utility corridors in accordance with ANILCA, Title XI. This Land Use Designation represents a Transportation and Utility Systems (TUS) "Avoidance Area." Transportation and utility sites or corridors may be located within this Land Use Designation only after an analysis of potential

TUS corridors has been completed and no feasible alternatives exist outside this LUD.

7. Allow motorized access in accordance with ANILCA, Sections 811 and 1110(b).

Land Ownership Administration: LAND123

- A. Acquire private inholdings as opportunities arise.

MINERALS GEOLOGY

Minerals and Geology Resource Administration: MG12

Forest Lands Open to Mineral Entry

- A. Forest lands within this Land Use Designation are open to mineral entry.
- B. Assure prospectors and claimants their right of ingress and egress granted under the General Mining Law of 1872, ANILCA, and National Forest Service Mining Regulations 36 CFR 228.
- C. Permit reasonable access to mining claims in accordance with the provisions of an approved Plan of Operations.
- D. Mineral activity must be conducted in a manner that minimizes surface disturbance, sedimentation, air pollution, visual impairment, and applicable State Water Quality Standards.

Plan of Operations

- A. Encourage use of state-of-the-art techniques for developing minerals to reduce impacts to the extent reasonable.
- B. Apply appropriate Transportation Forest-wide Standards and Guidelines to the location and construction of mining roads and facilities.
- C. Manage mineral exploration and development activities to be compatible with the emphasis of this Land Use Designation. Apply the following management practices to reduce resource impacts.
 1. Manage mineral activities to maintain the present and continued productivity of anadromous fish and other foodfish habitat to the maximum extent feasible. (Consult ANILCA, Section 505(a).)
 2. Take maximum advantage of topographic and vegetative screening when locating drill rigs and pumps, roads, rock quarries, structures, and marine transfer facilities.
 4. Discourage use of motorized surface vehicles, except as provided in ANILCA, Section 1110(b), which assures adequate and feasible access for economic and other purposes.
 5. Locate material sites and marine transfer facilities outside this Land Use Designation if reasonable alternatives exist.
 6. Ensure that vegetation removed from the project area is hauled away, buried, burned or scattered when vegetation is located adjacent to Visual Priority Travel Routes and Use Areas.
 7. Minimize the scale of spoil/disposal areas in relation to the surrounding landscape as seen from sensitive viewpoints.
 8. Approve use of colors that simulate those found in the characteristic landscape. Avoid use of reflective materials in project facilities.
 9. Apply timing restrictions to instream construction as needed to protect fisheries habitat and mitigate adverse disturbance of stream sediments.

10. Require use of sedimentation traps as needed to mitigate adverse stream sedimentation and meet state and Federal water quality regulations.
11. Approve reclamation plans in which minerals activities leave a natural-appearing condition.
12. Ensure that landform modifications simulate naturally-occurring forms.
13. Ensure that disturbed areas are revegetated in accordance with project plans.

RECREATION AND TOURISM

Recreation Use Administration: REC122

Recreation Settings

- A. Continue to provide the spectrum of outdoor recreation opportunities in accordance with the existing capabilities of this Land Use Designation as indicated by the ROS inventory.
 1. Provide the existing recreation settings and opportunities compatible with the protection of the outstandingly remarkable values of the river generally Roded Natural or Semi-primitive. Manage recreation use in a manner compatible with the long-term objectives.
 2. Recreation facilities such as boat access points, trails, public recreation cabins, and infrequent minor facilities such as picnic areas and designated camping areas are appropriate.

Recreation Special Uses

- A. Major developments may be compatible with the LUD objectives depending on the scope, purpose, and magnitude of the proposal. Proposals will be evaluated on a case-by-case basis. Refer to the Recreation and Tourism Forest-wide Standards and Guidelines.
- B. Minor developments are fully compatible with this LUD and applicants are encouraged to examine these areas first. Refer to the Recreation and Tourism Forest-wide Standards and Guidelines.

SCENERY

Scenery Operations: VIS1

- A. Maintain or improve the visual character of river segments which qualified the river as a Scenic River particularly where scenic quality is an outstandingly remarkable value. In foreground settings, design management activities to not be visually evident to the casual observer. Management activities should be visually subordinate to the characteristic landscape in the middleground distance zone. In all settings, activities should utilize existing form, line, color, and texture found in the characteristic landscape.
 1. Apply to the river corridor the Retention Visual Quality Objective (VQO) for lands in the foreground distance zone, and the Partial Retention VQO for lands in the middleground and background distance zone, as seen from the River and other Visual Priority Travel Routes and Use Areas (see Appendix F). In areas not seen from the River or Visual Priority Travel Routes and Use Areas, apply the Modification VQO. However, if scenery is listed as one of the outstandingly remarkable values, apply the partial retention VQO. These objectives define the maximum limit of

allowable change to the visual character of the area; less visible evidence of activities is acceptable. Note that these standards and guidelines only apply to lands within the Scenic River Land Use Designation (LUD). The area adjacent to this LUD is managed according to the guidelines of the adjacent LUD.

2. Exceptions to the VQO for small areas of non-conforming developments, such as recreation sites, transportation developments, and mining development, may be considered on a case-by-case basis. Use designs and materials that are compatible with forms, colors and textures found in the characteristic landscape.
- B. Locate and design recreation facilities and other authorized activities within the river corridor in a manner most compatible with the Retention Visual Quality Objective. Recreation facilities visible from the river generally are limited to those providing access to water-based recreation opportunities, such as fishing access points, trails, and boat launch facilities. Other recreation facilities, such as cabins, are generally screened from view from the river.

SOIL AND WATER

Watershed Resource Improvements: S&W2

- A. Undertake watershed improvements within the river corridor only where deteriorated soil or hydrologic conditions create a threat to the values for which the river is managed. Use, whenever possible, indigenous plant species and materials in implementing land treatment measures to protect or improve the quality and/or quantity of the water resource or when stabilizing or improving the productivity of the soil resource. (Consult FSM 2350 and 2520.)

SUBSISTENCE

Subsistence: SUB

- A. Subsistence use occurs in accordance with applicable Federal and state regulations.
- B. Allow subsistence activities in the Scenic River Land Use Designation, subject to reasonable regulations to protect Scenic River resources.

TIMBER

Timber Resource Planning: TIM112

- A. Suitable forested land is available for harvest and is included in the Allowable Sale Quantity calculation, if timber harvest is allowed in the adjacent Land Use Designation.
- B. Personal use woodcutting is compatible with this Land Use Designation provided that management objectives are met. Cutting within 100 feet of the river is discouraged. The cutting of down trees in navigable rivers (sweepers) must be compatible with the management direction for fish habitat and protect the outstandingly remarkable characteristics of the river.

Timber Resource Coordination: TIM113

- A. Project analysis, development of environmental documents, and design for timber activities will enhance or maintain the outstandingly remarkable values within the river corridor.

Timber Sale Preparation: TIM114

- A. Timber harvest activities may include even-aged, two-aged, and uneven-aged silvicultural methods. Project analysis will recognize the effects of color, tone, texture, line, slope, size, and edge on the Scenic River.
- B. The following guidelines provide direction for timber harvest activities to meet Visual Quality Objectives (VQO's) and Visual Absorption Capability (VAC) settings. These conditions are approximate estimates for planning purposes and should be referred to as guidelines during project analysis. Ground conditions may indicate a need to be more restrictive or relaxed in scheduling harvest to meet the intent of the Visual Quality Objective.
 - 1. *Retention* - The Retention Visual Quality Objective requires that timber harvest activities are not evident to the casual Forest visitor.
 - 2. *Partial Retention* - The Partial Retention Visual Quality Objective requires that, although timber harvest activities are evident, they must remain subordinate to the characteristic landscape.
 - 3. *Modification* - Management activities may dominate the characteristic landscape, yet will be designed to borrow from form and line found in the naturally-occurring landscape.
 - 4. The following describes typical regeneration methods and approximate unit sizes for landscapes of different visual absorption capabilities for the VQOs adopted in this LUD.
 - * *VQO Retention:*
 - Low : Single tree or group selection (less than 2 acres)
 - Intermediate : Single tree or clearcut (approx. 5 - 15 acres)
 - High : Clearcut (approx. 15 - 30 acres)
 - * *VQO Partial Retention:*
 - Low : Group selection or clearcut (approx. 2-10 acres)
 - Intermediate : Clearcut (approx. 10 - 40 acres)
 - High : Clearcut (approx. 40 - 60 acres)
 - * *VQO Modification:*
 - Low : Clearcut (approx. 15 - 40 acres)
 - Intermediate : Clearcut (approx. 40 - 60 acres)
 - High : Clearcut (approx. 80 - 100 acres)
- C. Salvage harvest of dead or down material may occur. Removal of naturally-occurring dead trees in and along the river shoreline, including "sweepers" extending into the river from the bank should consider the protection of outstandingly remarkable values and fish habitat in accordance with agreements with the State on the management of navigable waters.

TRANSPORTATION Transportation Operations: TRAN1

- A. Develop and manage the transportation system in a manner compatible with Scenic River classification.
 - 1. Allow the construction of Forest Development Roads which may provide access to the river. Roads may occasionally bridge the river.
 - 2. Locate and design roads which, except for short segments or at bridge crossings, are not evident to the casual observer

traveling on the river. Do not allow long stretches of conspicuous and well-travelled roads paralleling the riverbank.

3. Limiting the design standards of Forest Development Roads to those necessary to accommodate single use or a controlled mix of traffic (i.e., Traffic Service Level C or D). Occasional roads will be at a higher service level but that will be an exception.
4. Consider the recreation emphasis of this Land Use Designation during development of road management objectives.

WILDLIFE

Wildlife Habitat Improvement: WILD22

- A. Allow wildlife habitat improvement where the principal objective is the protection or restoration of River resources, and the enhancement of outstandingly remarkable values.

RECREATIONAL RIVER

Land Use Designation RR

Goals

To manage designated river segments according to the "Wild and Scenic Rivers Act (Public Law 90-542), "National Wild and Scenic Rivers System; Final Revised Guidelines for Eligibility, Classification, and Management of River Areas" (Federal Register Volume 47, Number 173, 1982), and direction in Forest Service Manuals and Handbooks.

To maintain, improve and protect the essentially free-flowing character and outstandingly remarkable values of rivers and river segments designated as Recreational Rivers and included in the National Wild and Scenic Rivers System.

To provide recreation opportunities in a pleasing, though modified, generally free-flowing river setting, while allowing timber harvest, transportation, and other developments.

To manage recommended Recreational River segments to maintain their outstandingly remarkable values and classification eligibility until Congress designates the segments or decides not to designate them.

Objectives

Manage Recreational River segments to maintain a free-flowing river resource, while providing for access and use consistent with the Wild and Scenic Rivers Act and the Alaska National Interest Lands Conservation Act (ANILCA).

Permit timber harvest on suitable timber lands if adjacent lands are being managed for that purpose, in accordance with the standards and guidelines for the stated Visual Quality Objectives.

Manage recreation use and activities to meet the levels of social encounters, on-site developments, methods of access, and visitor impacts indicated for the desired Recreation Opportunity Spectrum class, generally Roaded Natural.

Permit roads to access, parallel, or cross the river. In general, design access roads to accommodate passenger cars, and open them to public use.

Apply the Partial Retention Visual Quality Objective to foreground areas within the corridor seen from the river, roads, and recreation facilities, and Modification to all other seen areas within the river corridor.

Desired Future Condition

Recreational Rivers and river segments are in a generally unmodified to modified, essentially free-flowing condition. Ecological processes and changes may be affected by human uses. The outstandingly remarkable values for which the river was designated remain outstanding and remarkable. Recreation users have the opportunity for a variety and range of experiences in a modified but pleasing setting. Resource activities and developments may be present within the river corridor, and may dominate some areas. A variety of visual conditions occur. Interactions between users may be moderate to high. A sustained yield of timber may be produced.

At-a-Glance . . .

Facilities	Administrative facilities and public information centers are allowed in the river corridor provided they do not have adverse effects on the values this LUD is intended to protect.
Fire	Suppression actions and prescribed fire are used to maintain the scenic quality of this Land Use Designation.
Fish	Aquatic biological habitat productivity is maintained or improved. Projects may be identified and implemented which create or improve angling opportunity or that help meet the objectives of the Interagency Regional Salmon Plans.
Forest Health	Forest health is maintained or improved to protect Recreational River values.
Heritage Resources	Locate, evaluate and protect significant heritage resources. Interpretation may be provided.
Lands	No development of hydroelectric power facilities is permitted for: 1) projects exempted from licensing by the Federal Energy Regulatory Commission or 2) projects on rivers designated through Sections 2, 3, and 5(a) of the Wild and Scenic Rivers Act. The Forest Service will recommend that FERC not license a project on a river found eligible and suitable for inclusion in Wild and Scenic Rivers System. If the project is necessary, impose conditions on any license issued that the outstandingly remarkable characteristics and the free-flowing nature of the river be protected. Existing low dams, diversion works, and flood control works may remain; but new structures which affect the free-flowing character of the river are generally prohibited.
Minerals	Lands are open to mineral entry. Activities should result in acceptable levels of surface disturbance, sedimentation, air pollution, visual impairment, and meet State Water Quality Standards. Reasonable access is permitted.
Recreation/Tourism	Use and activities are managed for the safety and convenience of the user, and protection and interpretation of the river resources. Experiences may include those requiring moderate isolation to those influenced by humans in a modified setting. Recreation facilities may include campgrounds, picnic areas, lodges, resorts, and interpretive sites, and similar facilities.
Scenery	Management activities within the foreground seen area are subordinate to the characteristic landscape. Existing developments may occasionally dominate the landscape.
Soil and Water	Land use activities are carried out in a manner which controls sediment and protects water quality.
Subsistence	Subsistence use occurs in accordance with Federal and state regulations and may be seasonally prevalent throughout this Land Use Designation.

Timber	Suitable forested land is available for harvest and is included in the Allowable Sale Quantity calculation if the adjacent Land Use Designation allows timber harvest.
Transportation	Roads are generally compatible, and provide for conventional motorized use. Both motorized and non-motorized trail opportunities may be provided.
Wildlife	Emphasis is on maintaining habitat conditions for indigenous species and improving wildlife viewing opportunities.

Apply the following Forest-wide Standards & Guidelines located in Chapter 4:

RESOURCE	SECTION	SUB-SECTIONS	PAGE
AIR	AIR	All	4-2
BEACH AND ESTUARY FRINGE	BEACH1, BEACH2	All	4-3
BIODIVERSITY	BIO	All	4-7
FACILITIES	FAC	All	4-9
FIRE	FIRE	All	4-10
FISH	FISH	All	4-12
FOREST HEALTH	HEALTH	All	4-18
HERITAGE RESOURCES	HER	All	4-19
KARST AND CAVE RESOURCES	KARST, CAVE	All	4-23
LANDS	LAND	All	4-26
LAW ENFORCEMENT	LAW	All	4-39
MINERALS AND GEOLOGY	MG11 MG12	All II-VII	4-40
RECREATION AND TOURISM	REC	All	4-42
RIPARIAN	RIP1, RIP2, RIP3	All	4-61
RURAL DEVELOPMENT	RUR	All	4-80
SCENERY	VIS1, VIS12 VIS11	All I, II(A-D)	4-81
SOIL AND WATER	S&W	All	4-89
SUBSISTENCE	SUB	All	4-93
THREATENED, ENDANGERED, SENSITIVE	TE&S	All	4-95
TIMBER	TIM	All	4-101
TRAILS	TRAI	All	4-112
TRANSPORTATION	TRAN111, 122, 212, 22, 23 TRAN214	All I-IV	4-115
WETLANDS	WET	All	4-123
WILDLIFE	WILD	All	4-124

Apply the following Land Use Designation Standards & Guidelines:

FACILITIES

Facilities Improvements: FAC2

- A. Allow the location of administrative facilities and public information centers in the river corridor if they do not have adverse effects on the values this Land Use Designation is intended to protect.

FIRE

Fire Suppression: FIRE12

Suppression Action

- A. All wildfires will be suppressed using the suppression option identified in the Southeast Alaska/Prince William Sound Fire Management Plan. An Escaped Fire Situation Analysis (EFSA) of expected fire behavior, time of year, and locations with respect to private land and adjacent land use areas, may lead to a lower strategy. If an EFSA discloses no adverse effects and it is more cost-efficient, the lower strategy will be used.
- B. Suppression tactics are limited only by the standards and guidelines for this Land Use Designation, such as soil, water, and scenery.

Fuel Improvements: FIRE2

Prescribed fire

- A. Management-ignited prescribed fire must meet the Partial Retention Visual Quality Objective and meet all soil and water quality standards.
 - 1. All activity fuels will be treated to meet the Partial Retention Visual Quality Objective within one year following timber harvest.
- B. Prescribed natural fire will not be used in this Land Use Designation.

FISH

Fish Habitat Planning: FISH112

- A. Provide for public interpretation of fish habitats, habitat enhancement projects, and associated special fisheries conditions in appropriate Recreational Rivers.
- B. Evaluate fish habitat improvement during project planning by considering:
 - 1. Effects on the free flow of water.
 - 2. Effects on the outstandingly remarkable values for which the river was designated.
 - 3. Weirs and other stream obstructions will be discouraged.

FOREST HEALTH

Forest Health Management: HEALTH1

- A. Maintain or improve forest health through insect and disease management practices. Implement these practices in compliance with recreation objectives.
 - 1. Encourage hazard tree management in developed areas.
 - 2. Permit Salvage and sanitation of infested timber.

Forest Insect and Disease Survey and Inventory: HEALTH2

- A. Survey and inventory visible outbreaks.

HERITAGE

Heritage Resource Activities: HER

Inventory/Evaluation

- A. Develop priorities and schedule management activities to implement heritage resource inventory, evaluation, protection, interpretation, and allocation within this Land Use Designation.
 - 1. Identify, classify, and evaluate known heritage resources.
 - 2. Identify heritage properties to be nominated to the National Register of Historic Places.
 - 3. Identify heritage properties that require stabilization or other protective measures.
 - 4. Identify opportunities for interpretation of heritage resources for public education and enjoyment.

KARST AND CAVES

Cave Management Program: CAVE

- A. Identify opportunities for interpretation of caves for public education and enjoyment. Interpretation may occur inside or outside of this LUD.

LANDS

Special Use Administration (Non-Recreation): LAND122

- A. Permit only those uses consistent with management objectives. (Consult the Land and Resource Management Planning Handbook 1909.12, Chapter 8.)
 - 1. Allow existing low dams, diversion works, rip rap, and other minor similar instream structures, to remain. Generally, prohibit new structures of this nature.
 - 2. Permit no development of hydroelectric power facilities for: 1) projects exempted from licensing by the Federal Energy Regulatory Commission or 2) projects on rivers designated through sections 2, 3, and 5(a) of the Wild and Scenic Rivers Act. The Forest Service will recommend to FERC that a project on a river found eligible and suitable for inclusion in Wild and Scenic Rivers System should not be licensed because it is inconsistent with the purposes for which the National Forest was created or acquired and, if necessary, impose conditions on any license issued for a project on that river that fully protect its outstandingly remarkable characteristics and free-flowing nature.
 - 3. Permit maintenance of existing flood control structures. Do not authorize new ones.
 - 4. Consider authorizing construction of roads, trails, or railroads, on a case-by-case basis. They may be authorized on one, or both, river banks and there may be several bridge crossings and numerous river access points. Permit new structures as necessary and appropriate.
 - 6. Transportation and utility corridors will be allowed in accordance with ANILCA, Title XI. This Land Use Designation represents a Transportation and Utility Systems (TUS) "Avoidance Area." Transportation and utility sites or corridors may be located

within this Land Use Designation only after an analysis of potential TUS corridors has been completed and no feasible alternatives exist outside this LUD.

7. Allow motorized access in accordance with ANILCA, Sections 811 and 1110(b).

Land Ownership Administration: LAND123

- A. Acquire private inholdings as opportunities arise.

**MINERALS
GEOLOGY**

Minerals and Geology Administration: MG12

Forest Lands Open to Mineral Entry

- A. Forest lands within this Land Use Designation are open to mineral entry.
- B. Assure prospectors and claimants their right of ingress and egress granted under the General Mining Law of 1872, ANILCA, and National Forest Service Mining Regulations 36 CFR 228.
- C. Permit reasonable access to mining claims in accordance with the provisions of an approved Plan of Operations.

Plan of Operations

- A. Work with claimants to develop a Plan of Operations that adequately mitigates adverse impacts to Land Use Designation objectives. Include mitigation measures that are compatible with the scale of proposed development and commensurate with potential resource impacts.
- B. Apply appropriate Transportation Forest-wide Standards and Guidelines to the location and construction of mining roads and facilities.
- C. Manage mineral exploration and development activities to be compatible with the emphasis of this Land Use Designation. Apply the following management practices to reduce resource impacts.
 1. Manage mineral activities to maintain the present and continued productivity of anadromous fish and other foodfish habitat to the maximum extent feasible. (Consult ANILCA, Section 505 (a).)
 2. Take advantage of topographic and vegetative screening when locating drill rigs and pumps, roads, rock quarries, structures, and marine transfer facilities.
 3. Ensure that vegetation removed from the project area is hauled away, buried, burned, or scattered when located adjacent to Visual Priority Routes and Use Areas.
 4. Minimize the scale of spoil/disposal areas in relation to the surrounding landscape as seen from sensitive viewpoints.
 5. Approve use of colors that simulate those found in the characteristic landscape.
 6. Apply timing restrictions to instream construction as needed to protect fisheries habitat and mitigate adverse disturbance of stream sediments.
 7. Require use of sedimentation traps as needed to mitigate adverse stream sedimentation and meet state and Federal water quality regulations.
 8. Approve reclamation plans in which minerals activities leave a natural-appearing condition.

9. Ensure the disturbed areas are revegetated in accordance with project plans.

RECREATION AND TOURISM

Recreation Use Administration: REC122

Recreation Settings

- A. Continue to provide the spectrum of outdoor recreation opportunities in accordance with the existing capabilities of this Land Use Designation as indicated by the ROS inventory.
 1. Provide the existing recreation settings and opportunities until scheduled activities and practices cause a change in the ROS setting(s). Manage recreation use in a manner that is compatible with the long-term objectives of this Land Use Designation.
 2. In locations where scheduled activities change the recreation setting(s), manage the new setting(s) in accordance with the appropriate ROS guidelines. Maintain the capability of this Land Use Designation to provide appropriate quality recreation opportunities on a sustained basis.
 3. Provide recreation facilities consistent with the ROS setting. Where possible, major facilities should be screened from the river. On-site interpretation may be provided.
 4. Manage use and activities for the safety and convenience of the user, and protection and interpretation of the river resources. Experiences may include those requiring moderate isolation to those influenced by humans in a modified setting. Recreation facilities may include campgrounds, picnic areas, lodges, resorts, and interpretive sites and similar facilities.

Recreation Special Uses

- A. Major and minor developments are compatible with this LUD, and applicants are encouraged to examine these areas first. Refer to the Recreation and Tourism Forest-wide Standards and Guidelines.

SCENERY

Scenery Operations: VIS1

- A. In foreground settings, design management activities to be subordinate to the characteristic landscape. Management activities may dominate areas seen in the middleground distance. In all settings, activities should utilize existing form, line, color and texture found in the characteristic landscape.
 1. Apply the Partial Retention Visual Quality Objective (VQO) in the foreground distance zone, and the Modification VQO in the middleground and background distance zones, as seen from Visual Priority Travel Routes and Use Areas (see Appendix F). In areas not seen from the River or Visual Priority Travel Routes and Use Areas, apply the Maximum Modification VQO. However, if scenery is listed as one of the outstandingly remarkable values, apply the Partial Retention VQO in the middleground, background and unseen areas. These objectives define the maximum limit of allowable change to visual character of the area; less visible evidence of activities is acceptable. Note that these standards and guidelines only apply to the lands within the Recreational River Land Use Designation (LUD). The area adjacent to this

LUD is managed according to the guidelines of the adjacent LUD.

2. Exceptions for small areas of non-conforming developments, such as recreation sites, transportation developments, log transfer facilities and mining development, may be considered on a case-by-case basis. Use designs and materials that are compatible with forms, colors, and textures found in the characteristic landscape.

SOIL AND WATER

Watershed Resource Improvements: S&W2

- A. Undertake watershed improvements within the river corridor where deteriorated soil or hydrologic conditions exist. Use, whenever possible, indigenous plant species and materials in implementing land treatment measures to protect or improve the quality and/or quantity of the water resource or when stabilizing or improving the productivity of the soil resource. (Consult FSM 2350 and 2520.)
- B. Carry out land use activities to maintain water quality.

TIMBER

Timber Resource Planning: TIM112

- A. Suitable forested land is available for harvest and is included in the Allowable Sale Quantity calculation if the adjacent Land Use Designation allows timber harvest. Silvicultural treatment is integrated with site and area development to provide healthy tree stands, vegetative diversity, and forage production for indigenous wildlife populations. Insect and disease control, and landscaping are performed to maintain the aesthetic value of both existing recreation and potential recreation sites.
- B. Personal use woodcutting is compatible with this Land Use Designation provided that management objectives are met. Cutting within 100 feet of the river is discouraged. The cutting of down trees in navigable rivers (sweepers) must be compatible with the management direction for fish habitat and the protection of the outstandingly remarkable characteristics of the river.

Timber Resource Coordination: TIM113

- A. Project design, analysis, and development of environmental documents for timber activities will emphasize enhancement or maintenance of the outstandingly remarkable river values.

Timber Sale Preparation: TIM114

- A. Timber harvest activities may include all applicable silvicultural systems. Project analysis will recognize the effects of color, tone, texture, line, slope, size, and edge on the scenic viewshed.
- B. Salvage harvest of dead or down material may occur. Removal of dead trees in and along the river shoreline, including sweepers extending into the river from the bank should consider the protection of the outstandingly remarkable values and fish habitat.
- C. The following guidelines provide direction for timber harvest activities to meet Visual Quality Objectives (VQO) and Visual Absorption Capability (VAC) settings. These estimates are appropriate for planning purposes and should be referred to as guidelines. Ground conditions

may indicate a need to be more restrictive or relaxed in scheduling harvest to meet the intent of the Visual Quality Objective.

1. *Partial Retention* - The Partial Retention Visual Quality Objective requires that, although timber harvest activities are evident, they must remain subordinate to the characteristic landscape.
2. *Modification* - Management activities may dominate the characteristic landscape, yet will be designed to borrow from form and line found in the naturally-occurring landscape.
3. *Maximum Modification* - Activities may visually dominate the original characteristic landscape. This VQO should be met within one year in the foreground distance zone and within five years in the middle and background distances.
4. The following describes typical regeneration methods and approximate unit sizes for landscapes of different visual absorption capabilities for the VQOs adopted in this LUD.

* *VQO Partial Retention:*

Low : Group selection or clearcut (approx. 2-10 acres)

Intermediate : Clearcut (approx. 10 - 40 acres)

High : Clearcut (approx. 40 - 60 acres)

* *VQO Modification:*

Low : Clearcut (approx. 15 - 40 acres)

Intermediate : Clearcut (approx. 40 - 60 acres)

High : Clearcut (approx. 80 - 100 acres)

* *VQO Maximum Modification:*

Low : Clearcut (approx. 50 - 75 acres)

Intermediate : Clearcut (approx. 80 - 100 acres)

High : Clearcut (approx. 80 - 100 acres)

TRANSPORTATION Transportation Operations: TRAN1

- A. Develop and manage the transportation system in a manner compatible with Recreational River classification.
 1. Allow the construction of Forest Development Roads. The river may be readily accessible by road. Roads may parallel the river bank and be conspicuous in places when viewed from the river.
 2. If accessible for public use, design roads to accommodate passenger cars and open them to public use, although traffic controls may be used during periods of high use (i.e., design to Traffic Service Level C or above).

EXPERIMENTAL FOREST

Land Use Designation EF

Goals

To provide for long-term opportunities for forest research and demonstration essential to managing forest resources.

Objectives

The Director of the Pacific Northwest Experiment Station (PNW) will prepare a development plan for each experimental forest in consultation with the Forest Supervisor designed to achieve the desired research objectives. Experimental Forests are jointly administered by the Pacific Northwest Experiment Station and the Ranger District in which located.

Allow timber harvest, as specified in the development plan, for research and demonstration purposes. Timber harvest is not counted towards the Allowable Sale Quantity, and forest lands are classified as unsuitable for timber production.

Roads and trails will generally research and interpretation. Allow facilities necessary for ongoing research, as specified in the experimental forest's development plan.

Allow fish enhancement or wildlife improvement projects for research purposes, or if they are compatible with the establishment objectives of the experimental forest.

Desired Future Condition

Each experimental forest is managed for the purposes for which it was established. Ongoing research provides useful needed information for forest management. Non-research types of activities and uses may be compatible, and do not interfere with, research or demonstration objectives. Opportunities for public use of roads may be present.

At-a-Glance . . .

Facilities	The individual experimental forest's development plan allows facilities which are necessary for ongoing research and its interpretation.
Fire	Suppression strategies and prescribed fire are used as determined in the experimental forest development plan.
Fish	Fish habitat enhancement projects may be used to provide research into the benefits of such projects. Other enhancement projects may occur if they are compatible with the experimental forest's establishment objectives.
Forest Health	Insect and disease management activities are coordinated with the Pacific Northwest Research Station and must comply with the experimental forest development plan.

Heritage Resources	Locate, evaluate and protect significant heritage resources. Interpretation may be provided.
Lands	If they are consistent with research objectives of the experimental forest, special use authorizations may be issued. New uses must be approved by the Station Director of the Pacific Northwest Research Station. National Forest System lands are retained and private inholdings may be acquired as opportunities arise.
Minerals	Depending upon the research objectives of the individual experimental forest, it may be withdrawn from mineral entry subject to valid existing rights. Presently nearly 5,000 acres of the Young Bay Experimental Forest is withdrawn from mineral entry; the Maybeso Experimental Forest is not withdrawn from mineral entry.
Recreation/Tourism	Recreation settings and levels of recreation use that do not interfere with the ongoing research are allowed. Interpretive activities which educate the public about forest management and different silvicultural systems and their effects are encouraged.
Scenery	A range of visual conditions may be present in an experimental forest. The visual condition of the experimental forest reflects the types of research being conducted. Evidence of logging may be quite noticeable in some portions of this Land Use Designation, while other portions will appear unharvested.
Soil and Water	Soil and water resources may be temporarily altered in experimental activities and treatment measures applied to assess their impacts.
Subsistence	Subsistence activities may occur which do not interfere with the ongoing research in the experimental forest. Firewood gathering is allowed only if it is compatible with research and demonstration activities.
Timber	Forested land is classified as unsuitable for timber production. Harvest conducted for research purposes is not chargeable to the Allowable Sale Quantity. Timber harvest as specified in the experimental forest's development plan is allowed for research and demonstration purposes. A variety of age classes may be present in the overall area. Personal use wood and Christmas tree cutting activities are limited to those allowed by the provisions in the experimental forest development plan.
Transportation	Generally roads and trails will be developed to facilitate and interpret the ongoing research of the experimental forest.
Wildlife	Wildlife habitat improvement projects may be present to provide research into the benefits of such projects. Other improvement projects may occur if they are compatible with the establishment objectives of the experimental forest. Wildlife habitats may be treated to assess the impacts of vegetation management upon wildlife populations.

Apply the following Forest-wide Standards & Guidelines located in Chapter 4:

RESOURCE	SECTION	SUB-SECTIONS	PAGE
AIR	AIR	All	4-2
BEACH AND ESTUARY FRINGE	BEACH	All	4-3
BIODIVERSITY	BIO	All	4-7
FACILITIES	FAC	All	4-9
FIRE	FIRE	All	4-10
FISH	FISH	All	4-12
FOREST HEALTH	HEALTH	All	4-18
HERITAGE RESOURCES	HER	All	4-19
KARST AND CAVE RESOURCES	KARST,CAVE	All	4-23
LANDS	LAND	All	4-26
LAW ENFORCEMENT	LAW	All	4-39
MINERALS AND GEOLOGY	MG	All	4-40
RECREATION AND TOURISM	REC	All	4-42
RIPARIAN	RIP	All	4-61
RURAL DEVELOPMENT	RUR	All	4-80
SCENERY	VIS1,VIS12 VIS11	All I,II(A-D)	4-81
SOIL AND WATER	S&W	All	4-89
SUBSISTENCE	SUB	All	4-93
THREATENED, ENDANGERED, SENSITIVE	TE&S	All	4-95
TIMBER	TIM111,111-1	All	4-101
TRAILS	TRAI	All	4-112
TRANSPORTATION	TRAN	All	4-115
WETLANDS	WET	All	4-123
WILDLIFE	WILD	All	4-124

Apply the following Land Use Designation Standards & Guidelines:

**BEACH AND
ESTUARY FRINGE**

Beach and Estuary Fringe: BEACH2

- A. Management activities more intensive than those allowed in the Beach and Estuary Fringe Forest-wide Standards and Guidelines, may be allowed to assess their impacts on beach and estuary fringe resources with appropriate NEPA analysis conducted by the PNW Station for decision by the line officer in charge.

BIODIVERSITY

Biodiversity: BIO

- A. Management activities may be designed to test various hypotheses about timber management, wildlife resources, and other aspects of forest management with appropriate NEPA analysis conducted by the PNW Station for decision by the line officer in charge.

FACILITIES

Facilities Improvements: FAC2

- A. Allow facilities necessary for ongoing research and its interpretation as specified in the individual experimental forests' development plan.
- B. Allow for continuation of established recreation use.

FIRE

Fire Suppression: FIRE12

Suppression Action

- A. All wildfires will be suppressed using the suppression action that minimizes fire suppression cost and resource damage. The action must meet the objectives of the experimental forest's development plan.
- B. Suppression tactics will be compatible with the Experimental Forest's objectives.

Fuel Improvements: FIRE2

Prescribed fire

- A. Management-ignited prescribed fire may be used if it is compatible with the experimental forest's objectives.
- B. As a general management practice, prescribed natural fire will not be used in the Land Use Designation, although they may be needed to perpetuate natural ecological processes. Should it become necessary to consider the use of prescribed natural fire, the Forest Plan must be amended to analyze, justify, and approve prescribed natural fire programs. (Consult FSM 5142).

FISH

Fish Habitat Planning: FISH112

- A. Fish habitat may be managed differently than identified in the riparian-oriented management prescriptions to help meet the experimental forest's research objectives. In some cases, forest-wide direction listed under FISH112 and FISH122 may not apply.
- B. Fish enhancement projects may occur if they are compatible experimental forest's establishment objectives. Fish habitat manipula-

tion may also occur to provide research into the costs, benefits, and effects of such manipulations with appropriate NEPA analysis conducted by the PNW Stations for decision by the line officer in charge.

FOREST HEALTH

Forest Health Management: Health1

- A. Coordinate insect and disease management activities with the Pacific Northwest Research Station and with the Experimental Forest's Development Plan.

Forest Insect and Disease Survey and Inventory: Health2

- A. Survey and inventory visible outbreaks.

HERITAGE

Heritage Resource Activities: HER

Inventory/Evaluation

- A. Develop priorities and schedule management activities to implement heritage resource inventory, evaluation, protection, and interpretation within this Land Use Designation.
 - 1. Identify, classify, and evaluate known heritage resources.
 - 2. Identify heritage properties to be nominated to the National Register of Historic Places.
 - 3. Identify heritage properties that require stabilization or other protective measures.
 - 4. Identify opportunities for interpretation of heritage resources for public education and enjoyment.

KARST AND CAVES

Cave Management Program: CAVE

- A. Identify opportunities for interpretation of caves for public education and enjoyment. Interpretation may occur inside or outside of this LUD.

LANDS

Special Use Administration (Non-Recreation): LAND122

- A. Issue only those special use authorizations consistent with Experimental Forest's research objectives.
 - 1. Coordinate all proposed new uses with the PNW Station Director to ensure compatibility with research objectives.
- B. This Land Use Designation represents a Transportation and Utility System (TUS) "Avoidance Area." Transportation and utility sites and corridors may be located within this Land Use Designation only after an analysis of potential TUS corridor opportunities has been completed and no feasible alternatives exist outside this LUD.

Land Ownership Adjustments: LAND26

- A. Acquire private inholdings as opportunities arise.

MINERALS GEOLOGY

Minerals and Geology Administration: MG12

- A. Depending on the research objectives, portions or all of the Experimental Forest may be withdrawn from mineral entry. Presently, nearly

5,000 acres of the Young Bay Experimental Forest is withdrawn from mineral entry; the Maybeso Experimental Forest is not withdrawn from mineral entry.

- B. Claimants with claims located within this Land Use Designation retain valid existing rights if such rights were established prior to the date the experimental forest was withdrawn.
- C. Reasonable access is permitted to mining claims.

Plan of Operations

- A. Encourage the use of state-of-the-art techniques for developing minerals to reduce impacts to the extent practicable. Include mitigation measures that are compatible with the scale of proposed development and commensurate with potential resource impacts.
- B. Apply appropriate Transportation Forest-wide Standards and Guidelines for the location and construction of mining roads and facilities.

**RECREATION AND
TOURISM**

Recreation Use Administration: REC122

Recreation Settings

- A. Continue to provide the spectrum of outdoor recreation opportunities in accordance with the existing capabilities of this Land Use Designation.
 - 1. Provide the existing recreation settings and opportunities that can be accommodated without adverse effect on research objectives, until scheduled activities and practices cause a change in the ROS setting(s).
 - 2. In locations where scheduled activities change the recreation setting(s), manage the new setting(s) in accordance with the appropriate ROS guidelines.
 - 3. Manage public use within the experimental forest to protect ongoing research activities.

Recreation Special Uses

- A. Major and minor developments are generally not consistent with the objectives of the Land Use Designation. Development proposals require scrutiny of the magnitude and scope for LUD conformance.

SCENERY

Scenery Operations: VIS1

- A. In the Development Plan, identify the Visual Quality Objectives which may range from Retention to Maximum Modification and will depend on the research objectives of the experimental forest. Emphasis on visual quality should be given for areas seen from Visual Priority Travel Routes and Use Areas (see Appendix F).

RIPARIAN

Riparian Habitat Planning: RIP

- A. Riparian habitat may be managed differently than identified in the riparian-oriented management prescriptions to help meet the experimental forest's research objectives. In some cases, forest-wide direction listed under RIP may not apply with appropriate NEPA analysis conducted by the PNW Station for decision by the line officer in charge.

**SOIL AND
WATER**

Watershed Resource Planning: S&W112

- A. Soil and water resources may be temporarily altered by experimental activities to assess the impacts of such activities upon soil productivity, water quality and quantity, and fish populations and habitat with appropriate NEPA analysis conducted by the PNW Station for decision by the line officer in charge.

Watershed Resource Improvement: S&W2

- A. Soil and water treatment measures may occur if they are compatible with experimental forest's establishment objectives. Different treatments may occur to provide information on benefits, costs, and effects of such treatments.

SUBSISTENCE

Subsistence: SUB

- A. Allow subsistence activities.

T, E & S

Threatened, Endangered & Sensitive: TE&S

Sensitive Species

- A. Sensitive species habitats may be manipulated with planned research activities to assess the impacts of forest management activities/ programs upon sensitive species habitats and populations with appropriate NEPA analysis conducted by the PNW for decision by the line officer in charge.

TIMBER

Timber Resource Planning: TIM112

- A. Forest lands are classified as unsuitable for timber production. Timber harvested for experimental and demonstration purposes will not be chargeable to the Allowable Sale Quantity. Timber activities, including harvest and cultural treatment, will only take place for demonstration and research purposes as specified in the experimental forest development plan.
- B. Personal use and Christmas tree cutting activities are limited to the provisions of the experimental forest's development plan.

TRANSPORTATION

Transportation Operations: TRAN1

- A. Provide and manage the transportation system as needed to accomplish the experimental forest objectives.
- B. Roads and trails may be developed to facilitate and interpret the ongoing research in this LUD.
- C. Roads may be constructed through the experimental forest to access other Land Use Designations, unless the roads would interfere with research objectives.
- D. Take advantage of opportunities to test the validity of standards and guidelines for road construction including the Best Management Practices.

WETLANDS

Wetlands: WET

- A. Wetlands may be managed differently than identified in the riparian-oriented management prescriptions to help meet the experimental forest's research objectives with appropriate NEPA analysis conducted by the PNW for decision by the line officer in charge.

WILDLIFE

Wildlife Habitat Planning: WILD112

- A. Wildlife habitat management and research will be identified in the Experimental Forest's Development Plan.
- B. Wildlife habitats may be treated to assess the impacts of vegetation management upon wildlife populations.

SCENIC VIEWSHED

Land Use Designation SV

Goals

To provide a sustained yield of timber and a mix of resource activities while minimizing the visibility of developments as seen from Visual Priority Travel Routes and Use Areas.

To recognize the scenic values of suitable timber lands viewed from selected popular roads, trails, water travel routes, recreation sites, bays and anchorages, and to modify timber harvest practices accordingly.

To seek to provide a supply of timber which meets annual and planning-cycle market demand from the Tongass National Forest, consistent with the standards and guidelines of this LUD.

Objectives

Within this Land Use Designation, apply the Visual Quality Objectives (VQO's) of Retention in the foreground distance zone, and Partial Retention in the middleground and background distance zones, as seen from the Visual Priority Travel Routes and Use Areas (see Appendix F). Apply the Maximum Modification VQO to all other areas.

Suitable forest lands are available for timber harvest. Utilize appropriate silvicultural systems consistent with the adopted VQO's. Other timber management objectives include:

- seek to reduce clearcutting when other methods will meet land management objectives;
- identify opportunities for diversifying the wood products industry (such as special forest products, and value-added local production);
- use forest health management to protect resource values;
- improve timber growth and productivity on commercial forest lands;
- plan, inventory, prepare, offer, sell, and administer timber sales and permits to ensure the orderly development of timber production;
- emphasize the overall reduction of costs, increase of revenues, and improvement of public service within the timber program.

Perform viewshed analysis in conjunction with project development to provide direction for retaining or creating a scenically-attractive landscape over time, and for rehabilitation of areas overly modified in the past.

Provide a spectrum of recreation and tourism opportunities consistent with the capabilities of this Land Use Designation. Semi-primitive to roaded experiences may be offered. Avoid changes to semi-primitive motorized settings when feasible.

Design roads and trails to be compatible with the characteristic landscape.

Manage even-aged timber stands on extended rotations.

Desired Future Condition

In areas managed under the Scenic Viewshed Land Use Designation, forest visitors, recreationists, and others using identified popular travel routes and use areas will view a natural-appearing landscape. Management activities in the foreground will not be evident to the casual observer. Activities in the middleground and background will be subordinate to the characteristic landscape.

Areas topographically screened from Cicual Priority Travel Routes and Use Areas may be heavily modified. Within these viewsheds, timber harvest units are typically small and affect only a small percentage of the seen area. At any given point in time, roads, facilities, and other structures are either not visually evident or are subordinate to the landscape. A variety of successional stages providing wildlife habitat occur, although late successional stages predominate. Recreation and tourism opportunities in a range of settings are available. A sustained yield of timber is produced. In the areas managed for Retention or Partial Retention VQO's, timber yields will generally be obtained through the use of small openings or uneven-aged systems.

At-a-Glance . . .

Facilities	Visual quality objectives are met when siting and constructing facilities for administrative use.
Fire	Suppression actions and prescribed fire are used to maintain the scenic quality of this Land Use Designation.
Fish	Aquatic biological habitat productivity is maintained or improved. Fisheries improvement projects may occur. The Riparian Forest-wide Standards and Guidelines.
Forest Health	Insect and disease management measures are implemented to maintain or enhance scenic quality and forest health.
Heritage Resources	Locate, evaluate and protect significant heritage resources. Interpretation may be provided.
Lands	Special use structures may be present, if they are consistent with LUD objectives.
Minerals	Lands are open to mineral entry. Scenery standards and guidelines reduce the scenic impact of mining activities, although Visual Quality Objectives may not be met during mineral development. Post-development reclamation seeks to meet scenery objectives.
Recreation/Tourism	Recreation experiences may range from those requiring a semi-primitive setting to those obtainable in roaded settings.
Scenery	In areas seen from Visual Priority Travel Routes and Use Areas, management activities are not apparent to the observer in the foreground (Retention VQO) and are visually subordinate to the characteristic landscape in the middle-ground and background distances (Partial Retention VQO).
Soil and Water	High water quality and soil cover are maintained and slope failure is avoided.
Subsistence	Subsistence activities occur in accordance with Federal and state regulations and may be seasonally prevalent.
Timber	Suitable forested lands are available for harvest, however, harvest activities are limited to ensure compliance with scenery standards and guidelines. Personal use woodcutting activities are compatible if they meet LUD objectives.

Transportation

Roads and trails may be present and are designed and constructed to be compatible with elements found in the characteristic landscape. They may enhance recreational opportunities.

Wildlife

Management emphasizes maintenance of late successional stages, although early and middle successional stages may occur. Habitat improvement may occur and is designed to be visually compatible.

Apply the following Forest-wide Standards & Guidelines located in Chapter 4:

RESOURCE	SECTION	SUB-SECTIONS	PAGE
AIR	AIR	All	4-2
BEACH AND ESTUARY FRINGE	BEACH	All	4-3
BIODIVERSITY	BIO	All	4-7
FACILITIES	FAC	All	4-9
FIRE	FIRE	All	4-10
FISH	FISH	All	4-12
FOREST HEALTH	HEALTH	All	4-18
HERITAGE RESOURCES	HER	All	4-19
KARST AND CAVE RESOURCES	KARST, CAVE	ALL	4-23
LANDS	LAND	All	4-26
LAW ENFORCEMENT	LAW	All	4-39
MINERALS AND GEOLOGY	MG11 MG12	All II-VII	4-40
RECREATION AND TOURISM	REC	All	4-42
RIPARIAN	RIP	All	4-61
RURAL DEVELOPMENT	RUR	All	4-80
SCENERY	VIS1,12 VIS11	All I,II, (A-C)	4-81
SOIL AND WATER	S&W	All	4-89
SUBSISTENCE	SUB	All	4-93
THREATENED, ENDANGERED, SENSITIVE	TE&S	All	4-95
TIMBER	TIM111,111-1 TIM114	All All	4-101
TRAILS	TRAI	All	4-112
TRANSPORTATION	TRAN	All	4-115
WETLANDS	WET	All	4-123
WILDLIFE	WILD112	All	4-124

Apply the following Land Use Designation and Standards & Guidelines:

FACILITIES

Facilities Improvements: FAC2

- A. Meet the Visual Quality Objectives for this Land Use Designation when siting and constructing facilities for administrative use.
 - 1. *Retention*: Structures and activities should not be visually evident to the casual observer from the sensitive viewpoints.
 - 2. *Partial Retention*: Structures and activities should be subordinate to the landscape character of the area.

FIRE

Fire Suppression: FIRE12

Suppression Action

- A. All wildfires will be suppressed using the suppression option identified in the Southeast Alaska/Prince William Sound Fire Management Plan. An Escaped Fire Situation Analysis (EFSA) of expected fire behavior, time of year, and locations with respect to private land and adjacent land use areas, may lead to a lower strategy. If an EFSA discloses no adverse effects and it is more cost-efficient, the lower strategy will be used.
- B. Suppression tactics are limited only by the standards for the Land Use Designation, such as soil, water quality, and scenery.

Fuel Improvements: FIRE2

Prescribed fire

- A. Management-ignited prescribed fire must meet the retention VQO and meet all soil and water quality standards.
 - 1. Treat all activity fuels to meet the Retention VQO within one year following timber harvest.
- B. Prescribed natural fire will not be used in this Land Use Designation.

FISH

Fish Habitat Improvements: FISH22

- A. Meet the Visual Quality Objectives in the design and construction of fish habitat improvements and aquaculture facilities.
 - 1. Construct facilities from materials which blend with, and are compatible with, the immediately surrounding landscape.

FOREST HEALTH

Forest Health Management: HEALTH1

- A. Design timber stand improvement, sanitation, salvage, and insect and disease management activities to be consistent with scenery and forest health objectives.

Forest Insect and Disease Survey and Inventory: HEALTH2

- A. Survey and inventory visible outbreaks.

HERITAGE

Heritage Resource Activities: HER

Inventory

A. Provide heritage resource assistance to all development proposals. Coordination includes participation and support for environmental analysis, inventory, evaluation, assessment, monitoring and protection of heritage resources during activities.

1. Heritage Resource inventory will be accomplished during project planning. SHPO concurrence and Forest Supervisor approval is required prior to implementation.
2. Heritage Resource Specialists shall provide input on known or predicted heritage resource site density in proposed project areas and make recommendations to manage heritage resources.
3. Should any heritage resources be discovered during project activity, all work within the vicinity of the discovery shall cease until a heritage resource specialist is able to evaluate the situation and resumption of activity is approved by the Forest Supervisor.

KARST AND CAVES

Cave Management Program: CAVE

- A. Identify opportunities for interpretation of caves for public education and enjoyment. Interpretation may occur inside or outside of this LUD.

LANDS

Special Use Administration (non-Recreation): LAND122

- A. Allow construction of structures only when Visual Quality Objectives can be achieved.
 1. Permit only structures which will not be evident to observers when viewed in the foreground distance from Visual Priority Travel Routes and Use Areas. In the middle to background distance, design structures to be subordinate to the characteristic landscape.
 2. Specify that materials and fabrication techniques for all new facilities be compatible with form, color and texture found in the immediately surrounding landscape.
- B. This land use designation represents a Transportation and Utility Systems (TUS) "Window" and provides opportunities for the future designation and location of transportation and utility sites or corridors.

MINERALS GEOLOGY

Minerals and Geology Resource Preparation: MG11

- A. Require a visual assessment and visual resource assistance with site planning and design of minerals activities.

Minerals and Geology Administration: MG12

Forest Lands Open to Mineral Entry

- A. Forest lands within this Land Use Designation are open to mineral entry.

- B. Assure prospectors and claimants their right of ingress and egress granted under the General Mining Law of 1872, ANILCA, and Forest Service Mining Regulations 36 CFR 228.
- C. Permit reasonable access to mining claims in accordance with the provisions of an approved Plan of Operations.

Plan of Operations

- A. Encourage use of state-of-the-art techniques for developing minerals to reduce impacts to the extent reasonable. Include mitigation measures that are compatible with the scale of proposed development and commensurate with potential resource impacts.
- B. Apply Transportation Forest-wide Standards & Guidelines to the location and construction of mining roads.
- C. Manage mineral activities to be compatible with the emphasis of this Land Use Designation. Apply the following management practices to meet Visual Quality Objectives.
 - 1. Recognize the effects of color, tone, form, texture, line, size, and edge on the scenic viewshed.
 - 2. Locate material disposal sites and marine transfer facilities outside this Land Use Designation if reasonable alternatives exist.
 - 3. Take maximum advantage of topographic and vegetative screening when locating drill rigs and pumps, roads, rock quarries, structures, and marine transfer facilities.
 - 4. Ensure that vegetation removed from the project area is hauled away, buried, burned, or scattered when such vegetation is located adjacent to sensitive viewpoints.
 - 5. Minimize the scale of spoil/disposal areas in relation to the surrounding landscape as seen from sensitive viewpoints.
 - 6. Approve use of colors that simulate those found in the characteristic landscape. Avoid use of reflective materials in project facilities.
 - 7. Ensure that landform modifications simulate naturally-occurring forms.
 - 8. Ensure that disturbed area are revegetated in accordance with project plans.

**RECREATION AND
TOURISM**

Recreation Use Administration: REC122

Recreation Settings

- A. Provide a spectrum of recreation opportunities consistent with the objectives of this Land Use Designation.
 - 1. Where possible, management activities should avoid change to recreation places unless analysis indicates a need to provide a different recreation opportunity.
 - 2. In locations where approved activities occur, the recreation setting may change to the Semi-primitive Motorized, Roaded Natural, and Roaded Modified ROS classes.
 - 3. Seek to maintain the recreation opportunity along existing trail corridors by minimizing road crossings and clearing directly adjacent to the trail.

4. Seek to minimize impacts to areas directly adjacent to developed recreation facilities (such as cabins and campgrounds) through scheduling and location of timber harvest activities.
- B. In those areas identified as Priority Use Areas, seek to maintain the existing ROS setting. When scheduled activities nearby may result in a change in the ROS setting, minimize the impacts so they maintain a Roaded Natural, or more natural setting.

Recreation Special Uses

- A. Major and minor developments are compatible with this LUD, and applicants are encouraged to examine these areas first. Refer to the Recreation and Tourism Forest-wide Standards and Guidelines.

SCENERY

Scenery Operations: VIS1

- A. Manage areas to maintain scenic quality as seen from Visual Priority Travel Routes and Use Areas.
 1. Apply the Retention Visual Quality Objective (VQO) for lands in the foreground distance zone, and the Partial Retention VQO for lands in the middleground and background distance zones, as seen from Visual Priority Travel Routes and Use Areas (see Appendix F). In areas of this allocation not seen from the Visual Priority Travel Routes and Use Areas, apply the Maximum Modification VQO. These objectives define the maximum limit of allowable change to the visual character of the area; less visible evidence of activities is acceptable.
 2. Exceptions for small areas of non-conforming developments, such as recreation sites, transportation developments, log transfer facilities and mining development, may be considered on a case-by-case basis.
 3. Perform viewshed analysis in conjunction with project development to provide direction for retaining or creating a visually attractive landscape over time.

SOIL AND WATER

Watershed Resource Planning: S&W112

- A. Delineate the location of soil and water protection areas on appropriate project maps to insure their recognition, proper consideration, and protection of the sale area.
- B. Manage non-enacted municipal watersheds for multiple use while providing water suitable for human consumption within State Water Quality Standards and water supply regulations.
- C. Apply Best Management Practices (BMP's) to all land-disturbing activities to protect the beneficial uses of water from non-point sources of pollution. (*Note:* Appendix C of this plan includes a summary of Best Management Practices which are found in Chapter 10 of the Soil and Water Conservation Handbook, 2502.22). Also consult FSM 2530, Forest-wide Standards and Guidelines for Facilities & Transportation, U.S. Army Corps of Engineers Regulations (33 CFR 323.4) and the Clean Water Act.

Watershed Resource Improvements: S&W2

- A. Implement soil and water improvement projects on non-enacted municipal watersheds at a level to prevent degradation of water quality below State of Alaska's Water Quality Standard for domestic use.

TIMBER

Timber Resource Planning: TIM112

- A. Suitable forested land is available for harvest and is included in the Allowable Sale Quantity calculation. Tentatively suitable lands assigned to no harvest prescriptions by standard or guideline are unsuitable and not included in the Allowable Sale Quantity calculation.

Timber Resource Coordination: TIM113

- A. Visual objectives will be emphasized in the analysis, the development of environmental documents, and the design and implementation of silvicultural activities.
- B. Personal use woodcutting activities are compatible with this Land Use Designation provided that management objectives are met.

Timber Sale Preparation: TIM114

- A. Timber harvest activities may include appropriate systems. Project analysis will recognize the effects of color, tone, form, texture, line, slope, size, and edge on the scenic viewshed.
- B. The following guidelines provide direction for timber harvest activities to meet Visual Quality Objectives (VQO) and Visual Absorption Capability (VAC) settings.
 - 1. *Retention* - The Retention Visual Quality Objective requires that timber harvest activities are not evident to the casual Forest visitor.
 - 2. *Partial Retention* - The Partial Retention Visual Quality Objective requires that, although timber harvest activities are evident, they must remain subordinate to the characteristic landscape.
 - 3. *Maximum Modification* - Management activities may dominate the area.
- C. The following guidelines provide specific visual mitigation measures appropriate to timber management.
 - 1. The ability to attain the adopted Visual Quality Objective is dependent on many variables. Visual Absorption Capacity (VAC) is an estimate of the relative ability of a landscape to absorb management activities. VAC ratings of High, Intermediate, and Low were derived from the Revision Database for analysis purposes. A Low VAC setting generally has steep slopes, with little landscape variety, while a High VAC setting is relatively flat and/or has a high degree of variety in the landscape.
 - 2. The unit sizes listed below provide guidance to the project IDT. Each landscape setting is different, and should be evaluated on a case-by-case basis. There may be instances where the visual objective can be attained while the unit size is greater than the guideline, and there also may be instances where the unit size must be smaller to meet the intent of the Visual Quality Objective.

3. The following describes typical regeneration methods and approximate unit sizes for landscapes of different visual absorption capabilities for the VQOs adopted in this LUD.
 - * *VQO Retention:*
 - Low : Single tree or group selection (less than 2 acres)
 - Intermediate : Single tree or clearcut (appx. 5 - 15 acres)
 - High : Clearcut (appx. 15 - 30 acres)
 - * *VQO Partial Retention:*
 - Low : Group selection or clearcut (appx. 2-10 acres)
 - Intermediate : Clearcut (appx. 10 - 40 acres)
 - High : Clearcut (appx. 40 - 60 acres)
 - * *VQO Maximum Modification:*
 - Low : Clearcut (appx. 50 - 75 acres)
 - Intermediate : Clearcut (appx. 80 - 100 acres)
 - High : Clearcut (appx. 80 - 100 acres)
4. Tree limbs, root wads, and tree stumps may require secondary treatment to meet the Retention and Partial Retention VQO. For timber sales and road construction contracts, use appropriate clauses which would address these concerns. Brush disposal funds may be appropriate to use in these settings.
5. Seek to minimize impacts to areas directly adjacent to developed recreation facilities (such as cabins and campgrounds) through scheduling and location of harvest activities.

TRANSPORTATION Transportation Operations: TRAN1

- A. Where transportation systems are developed and managed, they will meet the following guidelines.
 1. To meet the Visual Quality Objectives, special consideration must be given to minimizing apparent landform modification (as seen from sensitive travel routes) during road and log transfer facility location, design, and construction.
 2. Perform integrated logging system and transportation system analysis to determine the least cost facility (considering cost of construction, maintenance, and hauling) and design standards necessary to meet Land Use Designation objectives.
 3. Give special emphasis to maintaining wildlife habitat values, especially during road location and development of road management objectives.
 - * If the need to restrict access is identified during project interdisciplinary review, roads may be closed, either seasonally or yearlong, to minimize adverse effects on fish and wildlife.
 4. Provide recreational access where appropriate.
 5. Seek to avoid road crossings on existing trails or locating the road parallel to the trail. Should no other reasonable alternative exist, minimize site disturbance visible from the trail. Locate rock source development away from the trail to the extent possible while meeting the LUD objectives.

WILDLIFE

Wildlife Habitat Planning: WILD112

- A. Use existing inventories and evaluate the need for further project-specific inventories of wildlife habitat conditions during project analysis.

1. Select Management Indicator Species (MIS) appropriate to the project area for project analysis. (See also Wildlife Forest-wide Standards & Guidelines).
- B. Coordinate all activities with consideration for the needs of wildlife, within the overall objectives of this Land Use Designation.
 1. Use the habitat needs of MIS to evaluate opportunities for, and consequences on, wildlife.
 2. In project planning, consider opportunities to allow for the elevational migration of wildlife.
 3. Consider silvicultural techniques which establish and prolong understory forb and shrub production in important habitat areas. Such techniques can include prescribed burning, precommercial thinning, canopy gaps, and uneven-aged management.
- C. Coordinate road management with the needs of wildlife.

Wildlife Habitat Improvement: WILD22

- A. Design and implement wildlife habitat improvement projects to meet the Visual Quality Objectives.

MODIFIED LANDSCAPE

Land Use Designation ML

Goals

To provide a sustained yield of timber and a mix of resource activities while minimizing the visibility of developments in the foreground distance zone.

To recognize the scenic values of suitable timber lands viewed from identified popular roads, trails, marine travel routes, recreation sites, bays, and anchorages, and to modify timber harvest practices accordingly.

To maintain and promote industrial wood production from suitable timber lands, providing a continuous supply of wood products to meet society's needs.

To seek to provide a supply of timber which meets annual and planning-cycle market demand from the Tongass National Forest, consistent with the standards and guidelines of this LUD.

Objectives

Within this Land Use Designation, apply the Visual Quality Objectives of Partial Retention, in the foreground distance zone, and Modification, in the middleground and background distance zones, for all the Visual Priority Travel Routes and Use Areas identified in Appendix F. Apply the Maximum Modification VQO to all other areas.

Suitable forest lands are available for timber harvest. Utilize appropriate silvicultural systems consistent with the adopted VQO's. Other timber management objectives include:

- seek to reduce clearcutting when other methods will meet land management objectives;
- identify opportunities for diversifying the wood products industry (such as special forest products, and value-added local production);
- use forest health management to protect resource values;
- improve timber growth and productivity on commercial forest lands;
- plan, inventory, prepare, offer, sell, and administer timber sales and permits to ensure the orderly development of timber production;
- emphasize the overall reduction of costs, increase of revenues, and improvement of public service within the timber program.

Provide a spectrum of recreation opportunities consistent with the capabilities of this Land Use Designation. Semi-primitive to Roaded experiences may be present. Avoid changes to semi-primitive non-motorized settings when feasible.

Design roads and associated rock quarries to meet the applicable Visual Quality Objective.

Desired Future Condition

In areas managed under the Modified Landscape Land Use Designation, forest visitors, recreationists, and others using popular travel routes and use areas will view a somewhat modified landscape. Management activities in the visual foreground will be subordinate to the characteristic

landscape, but may dominate the landscape in the middle and backgrounds. Within the foreground, timber harvest units are typically small and affect only a small percentage of the seen area at any one point in time. Roads, facilities, and other structures are also subordinate to the foreground landscape. Recreation opportunities associated with natural-appearing to modified settings are available. A variety of successional stages provide a range of wildlife habitat conditions. A sustained yield of timber is produced.

At-a-Glance . . .

Facilities	Administrative facilities are located and constructed to be compatible with the Visual Quality Objectives of the Land Use Designation.
Fire	All wildfires are controlled using a suppression action that minimizes fire suppression costs and resource damage. Prescribed fire, to improve natural ecological processes, is not presently used, but may be considered in the future.
Fish	Aquatic biological habitat productivity is maintained or improved. Fisheries enhancement projects may occur. The Riparian Forest-wide Standards and Guidelines apply along riparian areas.
Forest Health	Forest health management principles are applied to the extent necessary to maintain the scenic quality of the area and the health of the forest.
Heritage Resource	Locate, evaluate and protect significant heritage resources. Identify opportunities for interpretation of heritage resources for public education and enjoyment.
Minerals	Lands are open to mineral entry. Although Visual Quality Objectives may be exceeded during mineral development, scenery standards and guidelines minimize or reduce the scenic impact of mining activities. Post-development reclamation seeks to meet visual objectives for the area. Access for minerals is coordinated with timber sale road location when feasible.
Recreation/Tourism	Roaded Modified recreation experiences, and in some cases, Roaded Natural and Semi-Primitive Motorized recreation experiences generally result after timber harvest activities.
Scenery	As seen in the foreground, management activities are subordinate to the characteristic landscape (Partial Retention VQO). In the middleground and background distances, activities may dominate the seen area, but are designed to be compatible with form, line, color and texture found in the landscape (Modification VQO).
Soil and Water	Emphasis is on the maintenance of high water quality. Soil cover is maintained and slope failure is avoided.
Subsistence	Subsistence use is allowed in accordance with applicable Federal and state regulations.
Timber	Suitable forested land is available for timber management. Timber harvest may include even-aged, two-aged, and uneven-aged silvicultural systems

designed to meet the visual and timber objectives. Personal use woodcutting activities are compatible with this Land Use Designation provided that management objectives are met.

Transportation

A network of roads and helicopter access areas may be developed in association with timber harvest activities while meeting the Visual Quality Objectives of the Land Use Designation.

Wildlife

A wide variety of successional stages provide a full range of wildlife habitat conditions. Silvicultural treatment provides healthy tree stands, vegetative diversity, and forage production for wildlife populations.

Apply the following Forest-wide Standards & Guidelines located in Chapter 4:

RESOURCE	SECTION	SUB-SECTIONS	PAGE
AIR	AIR	All	4-2
BEACH AND ESTUARY FRINGE	BEACH	All	4-3
BIODIVERSITY	BIO	All	4-7
FACILITIES	FAC	All	4-9
FIRE	FIRE	All	4-10
FISH	FISH	All	4-12
FOREST HEALTH	HEALTH	All	4-18
HERITAGE RESOURCES	HER	All	4-19
KARST AND CAVE RESOURCES	KARST,CAVE	All	4-23
LANDS	LAND	All	4-26
LAW ENFORCEMENT	LAW	All	4-39
MINERALS AND GEOLOGY	MG11 MG12	All II-VII	4-40
RECREATION AND TOURISM	REC	All	4-42
RIPARIAN	RIP	All	4-61
RURAL DEVELOPMENT	RUR	All	4-80
SCENERY	VIS1,12 VIS11	All I,II(A-D)	4-81
SOIL AND WATER	S&W	All	4-89
SUBSISTENCE	SUB	All	4-93
THREATENED, ENDANGERED, SENSITIVE	TE&S	All	4-95
TIMBER	TIM	All	4-101
TRAILS	TRAI	All	4-112
TRANSPORTATION	TRAN	All	4-115
WETLANDS	WET	All	4-123
WILDLIFE	WILD	All	4-124

Apply the following Land Use Designation Standards & Guidelines:

FACILITIES

Facilities Improvements: FAC2

- A. Locate and construct facilities for administrative use that meet the Visual Quality Objective.

FIRE

Fire Suppression: FIRE12

Suppression Action

- A. All wildfires will use the option identified in the Southeast Alaska/Prince William Sound Fire Management Plan. An Escaped Fire Situation Analysis (EFSA) of expected fire behavior, time of year, and locations with respect to private land and adjacent land use areas, may lead to a lower strategy. If an EFSA discloses no adverse effects and it is more cost-efficient, the lower strategy will be used.
- B. Suppression tactics are limited only the the standards and guidelines for this Land Use Designation, such as soil, water quality, and visual quality.

Fuel Improvements: FIRE2

Prescribed fire

- A. Management-ignited prescribed fire must meet the partial retention VQO and meet all soil and water quality standards and guidelines.
 - 1. Treat all activity fuels to meet the Partial Retention VQO within one year following timber harvest.
- B. Prescribed natural fire will not be used in this Land Use Designation.

FOREST HEALTH

Forest Health Management: HEALTH1

- A. Forest insect and disease management activities emphasize forest health through achieving beneficial populations of insects and diseases.
 - 1. Encourage timber stand improvement, sanitation, and salvage.
 - 2. Manipulate insects and diseases to desirable levels by evaluating chemical, cultural, mechanical, biological or "no action" alternatives.

Forest Insect and Disease Survey and Inventory: HEALTH2

- A. Survey and inventory visible outbreaks.

HERITAGE

Heritage Resource Activities: HER

Inventory

- A. Provide heritage resource assistance to all developmental proposals. Coordination includes participation and support for environmental analysis, inventory, evaluation, assessment, monitoring and protection of heritage resources during activities.
 - 1. Heritage Resource inventory will be accomplished during project planning. SHPO concurrence and Forest Supervisor approval is required prior to implementation.

2. Heritage Resource Specialists shall provide input on known or predicted heritage resource site density in proposed project areas and make recommendations to manage heritage resources.
 3. Should any heritage resources be discovered during project activity, all work within the vicinity of the discovery shall cease until a heritage resource specialist is able to evaluate the situation and resumption of activity is approved by the Forest Supervisor.
- B. Identify opportunities for interpretation of heritage resources for public education and enjoyment.

KARST AND CAVES Cave Management Program: CAVE

- A. Identify opportunities for interpretation of caves for public education and enjoyment. Interpretation may occur inside or outside of this LUD.

LANDS

Special Use Administration (Non-Recreation): LAND122

- A. Authorize only those development activities compatible with LUD objectives. Avoid issuing or limit the duration of permits for uses which require natural surroundings.
1. Permit only activities which can be designed to meet the Visual Quality Objectives for this LUD.
- B. This Land Use Designation represents a Transportation and Utility Systems (TUS) "Window" and provides opportunities for the future designation and location of transportation and utility sites or corridors.

Landline Location and Maintenance: LAND231, LAND24

- A. Provide adequate landline marking for Forest Service contractors.
1. Prior to Forest Service management activities, survey, mark, and post the boundary of National Forest lands to Forest Service Standards, where there is a risk of trespass.

**MINERALS
GEOLOGY**

Minerals and Geology Administration: MG12

Forest Lands Open to Mineral Entry

- A. Forest lands within this Land Use Designation are open to mineral entry.
- B. Assure prospectors and claimants their right of ingress and egress granted under the General Mining Law of 1872, ANILCA, and National Forest Service Mining Regulations 36 CFR 228.
- C. Permit reasonable access to mining claims in accordance with the provisions of an approved Plan of Operations.

Plan of Operations

- A. Encourage use of state-of-the art techniques for developing minerals, to reduce impacts to the extent reasonable. Include mitigation measures that are compatible with the scale of proposed development and commensurate with potential resource impacts.
- B. Apply appropriate Transportation Forest-wide Standards and Guidelines to the location and construction of mining roads and facilities.

- C. Manage mineral exploration and development activities to be compatible with the emphasis of this LUD. Apply the following management practices to reduce resource impacts.
1. Manage mineral management activities to maintain the present and continued productivity of anadromous fish and other foodfish habitat to the maximum extent feasible. (Consult ANILCA, Sec. 505 (a).)
 2. Take advantage of topographic and vegetative screening when locating drill rigs and pumps, roads, rock quarries, structures, and marine transfer facilities.
 3. Ensure that vegetation removed from the project area is hauled away, buried, burned, or scattered when such vegetation is located adjacent to Visual Priority Travel Routes and Use Areas.
 4. Minimize the scale of spoil/disposal areas in relation to the surrounding landscape as seen from sensitive viewpoints.
 5. Approve use of colors that simulate those found in the characteristic landscape.
 6. Ensure that disturbed areas are revegetated in accordance with project plans.
 7. Apply timing restrictions to minerals activities as needed during critical wildlife mating, calving, and migrating periods.
 8. Ensure that landform modifications simulate naturally occurring forms.
 9. Approve reclamation plans in which minerals activities leave a natural-appearing condition.

RECREATION AND TOURISM

Recreation Use Administration: REC122

Recreation Settings

- A. Provide a spectrum of outdoor recreation opportunities consistent with the objectives of the Land Use Designation.
1. Provide the existing recreation settings and opportunities until approved activities and practices change the ROS setting(s). Manage recreation use in a manner that is compatible with the timber production objectives.
 2. In locations where approved activities change the recreation setting, manage the new setting with the appropriate ROS guidelines which is generally Roaded Modified.
 3. Seek to maintain the recreation opportunity along existing trail corridors by minimizing road crossings and clearing directly adjacent to the trail.
 4. Seek to minimize impacts to areas directly adjacent to developed recreation facilities (such as cabins and campgrounds) through scheduling and location of project activities.
- B. In those areas identified as Priority Use Areas, seek to maintain the existing ROS setting. When approved activities nearby may result in a change to the ROS setting, minimize the impacts so they maintain a Roaded Natural or more natural ROS setting.

Recreation Special Uses

- A. Major and minor developments may be compatible with the LUD objectives depending on the scope, purpose, and magnitude of the proposal. Proposals will be evaluated on a case-by-case basis.

SCENERY

Scenery Operations: VIS1

- A. In foreground settings, design management activities to be subordinate to the characteristic landscape. Management activities may dominate areas seen in the middleground and background distance. In all settings, activities should utilize existing form, line, color, and texture found in the characteristic landscape.
 - 1. Apply the Partial Retention Visual Quality Objective (VQO) in the foreground distance zone, and the Modification VQO in the middleground and background distance zones, as seen from Visual Priority Travel Routes and Use Areas (see Appendix F). In areas of this allocation not seen from the Visual Priority Travel Routes and Use Areas, apply the Maximum Modification VQO. These objectives define the maximum limit of allowable change to visual character of the area; less visible evidence of activities is acceptable.
 - 2. Exceptions for small areas of non-conforming developments, such as recreation sites, transportation developments, log transfer facilities and mining development, may be considered on a case-by-case basis.

SOIL AND WATER

Watershed Resource Planning: S&W112

- A. Delineate the location of high hazard soils, riparian, and other sensitive areas on project maps to insure their recognition, proper consideration, and protection on the sale area.
- B. Manage non-enacted municipal watersheds for multiple use while providing water suitable for human consumption within State Water Quality Standards and water supply regulations.
- C. Apply Best Management Practices (BMP's) to all land-disturbing activities to protect the beneficial uses of water from non-point sources of pollution. (*Note:* Appendix C of this plan includes a summary of Best Management Practices which are found in Chapter 10 of the Soil and Water Conservation Handbook, 2502.22). Also consult FSM 2530, Forest-wide Standards and Guidelines for Facilities & Transportation, U.S. Army Corps of Engineers Regulations (33 CFR 323.4) and the Clean Water Act.

Watershed Resource Improvements: S&W2

- A. Accomplish soil and water improvement projects in non-enacted municipal watersheds to prevent degradation of water quality below the State of Alaska's Water Quality Standard for domestic use.

TIMBER

Timber Resource Planning: TIM112

- A. Suitable forested land is available for timber harvest. Tentatively suitable lands assigned to no harvest prescription by standard or guideline are unsuitable and not included in the Allowable Sale Quantity.
- B. Personal use woodcutting activities are compatible with this Land Use Designation provided that management objectives are met.

Timber Sale Preparation: TIM114

- A. Use appropriate silvicultural systems. Recognize the effects of color, tone, texture, line, slope, size, and edge on the characteristic landscape.
- B. The following guidelines provide direction for timber harvest activities to meet Visual Quality Objectives (VQO) and Visual Absorption Capability (VAC) settings. The guidelines define the maximum allowable disturbance for timber harvest. Ground conditions may indicate a need to be more or less restrictive in scheduling harvest to meet the intent of the Visual Quality Objective.
 1. *Partial Retention* - The Partial Retention Visual Quality Objective requires that, although timber harvest activities are evident, they must remain subordinate to the characteristic landscape.
 2. *Modification* - Management activities may dominate the characteristic landscape, yet will be designed to borrow from form and line found in the naturally-occurring landscape.
 3. *Maximum Modification* - Activities may visually dominate the original characteristic landscape. This VQO should be met within one year in the foreground distance zone and within five years in the middle and background distance zones.
- C. The following guidelines provide specific visual mitigation measures appropriate to timber management.
 1. The ability to attain the adopted Visual Quality Objective is dependent on many variables. Visual Absorption Capacity (VAC) is an estimate of the relative ability of a landscape to absorb management activities. A Low VAC setting generally has steep slopes, with little landscape variety, while a High VAC setting is relatively flat and/or has a high degree of variety in the landscape.
 2. The unit sizes listed below provide guidance to the project IDT. Each landscape setting is different and should be evaluated on a case-by-case basis. There may be instances where the visual objective can be attained while the unit size is greater than the guideline, and there also may be instances where the unit must be smaller to meet the intent of the Visual Quality Objective.
 3. The following describes typical regeneration methods and approximate unit sizes for landscapes of different visual absorption capabilities for the VQOs adopted in this LUD.
 - * *VQO Partial Retention:*
 - Low : Group selection or clearcut (approx. 2-10 acres)
 - Intermediate : Clearcut (approx. 10 - 40 acres)
 - High : Clearcut (approx. 40 - 60 acres)
 - * *VQO Modification:*
 - Low : Clearcut (approx. 15 - 40 acres)
 - Intermediate : Clearcut (approx. 40 - 60 acres)
 - High : Clearcut (approx. 80 - 100 acres)
 - * *VQO Maximum Modification:*
 - Low : Clearcut (approx. 50 - 75 acres)
 - Intermediate : Clearcut (approx. 80 - 100 acres)
 - High : Clearcut (approx. 80 - 100 acres)
 4. Tree limbs, root wads, and tree stumps may require secondary treatment to meet the Partial Retention VQO in the foreground distance. For timber sales and road construction contracts, use

clauses which address these concerns. Brush disposal funds may be appropriate to use in these settings.

- D. Seek to provide for windfirm boundaries. To design for windfirmness, consider conditions such as soils, local wind patterns, tree height and size, and other site-specific factors.
- E. Manage even-aged timber stands at rotations beyond the age of mean annual increment culmination (merch. cubic foot basis).

Timber Stand Improvement: TIM25

- A. Timber stand improvement activities that meet the visual and timber objectives of the Land Use Designation may be used.
- B. Continue evaluation of commercial thinning opportunities in second-growth stands on the Forest for enhancing timber growth and development, while improving the visual quality and habitat conditions for wildlife. Evaluation will be provided as part of the Alaska Region Second-Growth Management Program.

TRANSPORTATION Transportation Operations: TRAN1

- A. Where transportation systems are developed and managed, they will meet the following guidelines.
 - 1. To meet the Visual Quality Objectives, give special consideration to minimizing apparent landform modification (as seen from sensitive travel routes) during road and log transfer facility location, design, and construction.
 - 2. Perform integrated logging system and transportation system analysis to determine the least-cost facility (considering cost of construction, maintenance, and hauling) and design standards necessary to meet Land Use Designation objectives.
 - 3. Give special emphasis to maintaining fisheries and wildlife habitat values, especially during road location and development of road management objectives.
 - * If the need to restrict access is identified during project interdisciplinary review, roads may be closed, either seasonally or yearlong, to minimize adverse effects on fish and wildlife.
 - 4. Provide recreation access where appropriate.
 - 5. Seek to avoid road crossings on existing trails or locating the road parallel to the trail. Should no other reasonable alternative exist, minimize site disturbance visible from the trail. Rock source development should be located away from the trail to the extent possible while meeting the objectives of this Land Use Designation.

WILDLIFE Wildlife Habitat Planning: WILD112

- A. Use existing inventories and evaluate the need for further project-specific inventories of wildlife habitat conditions during project analysis.
 - 1. Select Management Indicator Species (MIS) appropriate to the project area for project analysis. (See also Wildlife Forest-wide Standards & Guidelines.)
- B. Coordinate all activities with consideration for the needs of wildlife, within the overall objectives of this Land Use Designation.

1. Use the habitat needs of MIS to evaluate opportunities for, and consequences on, wildlife.
 2. In project planning, consider opportunities to allow for the elevational migration of wildlife.
- C. Coordinate road management with the needs of wildlife when feasible.

TIMBER PRODUCTION

Land Use Designation TM

Goals

To maintain and promote industrial wood production from suitable timber lands, providing a continuous supply of wood to meet society's needs.

To manage these lands for sustained long-term timber yields.

To seek to provide a supply of timber which meets annual and planning-cycle market demand from the Tongass National Forest, consistent with the standards and guidelines of this LUD.

Objectives

Within this Land Use Designation, apply the Visual Quality Objectives of Modification in the foreground distance zone as seen from Visual Priority Travel Routes and Use Areas (see Appendix F). Apply the Maximum Modification VQO to all other areas.

Locate and design timber harvest activities primarily to meet timber objectives. Suitable forest lands are available for timber harvest; appropriate silvicultural systems may be used. Other timber management objectives include:

- seek to reduce clearcutting when other cutting methods will meet land management objectives;
- identify opportunities for diversifying the wood products industry (such as special forest products, and value-added local production);
- use forest health management to protect resource values;
- improve timber growth and productivity on commercial forest lands;
- plan, inventory, prepare, offer, sell and administer timber sales and permits to ensure the orderly development of timber production;
- emphasize the overall reduction of costs, increase of revenues, and improvement of public service within the timber program.

Provide a spectrum of recreation and tourism opportunities consistent with the capabilities of this Land Use Designation. Manage recreation and tourism use to be compatible with timber production objectives. Manage changed recreation settings in accordance with the appropriate Recreation Opportunity Spectrum class.

Plan a transportation network of roads and helicopter access that will eventually access most of the suitable timber lands for standard logging or helicopter yarding systems.

Desired Future Condition

Suitable timber lands are managed for the production of sawtimber and other wood products on an even-flow, long-term sustained yield basis. An extensive road system provides access for timber management activities, recreation uses, hunting and fishing, and other public and administrative uses. Management activities will generally dominate most seen areas. Tree stands are healthy and in a balanced mix of age classes from young stands to trees of harvestable age, usually in 40- to 100-acre stands. Recreation opportunities associated with roaded settings,

from Semi-primitive to Roaded Modified, are available. A variety of wildlife habitats, predominantly in the early and middle successional stages, are present.

At-a-Glance . . .

Facilities	Permanent administrative facilities are constructed to be compatible with this Land Use Designation objective.
Fire	All wildfires are suppressed using a suppression action that minimizes fire suppression costs and resource damage. Management ignited prescribed fire may be used for silvicultural site preparation, wildlife habitat improvement, and insect and disease protection.
Fish	Aquatic biological habitat productivity is maintained or improved. Fisheries enhancement projects may occur. The Riparian Forest-wide Standards and Guidelines apply along riparian areas.
Forest Health	Forest insect and disease management activities emphasize forest health through manipulating insects and disease to desirable levels. Timber stand improvement, sanitation, and salvage are encouraged.
Heritage Resources	Locate, evaluate and protect significant heritage resources. Interpretation may be provided.
Lands	Only those uses which are compatible with LUD objectives are authorized. Avoid issuing, or limit the duration of, permits for uses which require natural surroundings.
Minerals	Lands are open to mineral entry. Access is coordinated with timber sale road location when feasible.
Recreation/Tourism	Roaded Modified, and, in some cases, Roaded Natural and Semi-primitive Motorized, recreation experiences generally result after timber harvest activities.
Scenery	Although harvest activities may dominate the foreground, they are designed with consideration for existing form, line, and texture found in the landscape (Modification VQO). The characteristic landscape outside of the foreground may be dominated by harvest activities (Maximum Modification VQO).
Soil and Water	Emphasis is maintaining high water quality and soil cover, minimizing slope failure, and reducing the degree of risk and potential effects from mass-wasting resulting from timber harvest and road construction.
Subsistence	Subsistence use is in accordance with applicable Federal and state regulations.
Timber	Suitable forested land is available for timber harvest. Timber harvest may include even-aged, two-aged, and uneven-aged silvicultural methods. Silvicultural treatment is integrated with site and area development to provide

healthy tree stands and to give consideration for vegetative diversity and forage production for wildlife. Personal use wood and Christmas tree cutting activities are fully compatible with this Land Use Designation.

Transportation

Most forested lands scheduled for harvest will eventually be accessed by road or helicopter.

Wildlife

A wide variety of vegetative conditions, including early, middle, and late successional stages provides a range of wildlife habitat conditions.

Apply the following Forest-wide Standards & Guidelines located in Chapter 4:

RESOURCE	SECTION	SUB-SECTIONS	PAGE
AIR	AIR	All	4-2
BEACH AND ESTUARY FRINGE	BEACH	All	4-3
BIODIVERSITY	BIO	All	4-7
FACILITIES	FAC	All	4-9
FIRE	FIRE	All	4-10
FISH	FISH	All	4-12
FOREST HEALTH	HEALTH	All	4-18
HERITAGE RESOURCES	HER	All	4-19
KARST AND CAVE RESOURCES	KARST, CAVE	All	4-23
LANDS	LAND	All	4-26
LAW ENFORCEMENT	LAW	All	4-39
MINERALS AND GEOLOGY	MG11 MG12	All II-VII	4-40
RECREATION AND TOURISM	REC	All	4-42
RIPARIAN	RIP	All	4-61
RURAL DEVELOPMENT	RUR	All	4-80
SCENERY	VIS1,12 VIS11	All I,II(A-D)	4-81
SOIL AND WATER	S&W	All	4-89
SUBSISTENCE	SUB	All	4-93
THREATENED, ENDANGERED, SENSITIVE	TE&S	All	4-95
TIMBER	TIM	All	4-101
TRAILS	TRAI	All	4-112
TRANSPORTATION	TRAN	All	4-115
WETLANDS	WET	All	4-123
WILDLIFE	WILD	All	4-124

Apply the following Land Use Designation and Standards & Guidelines:

FACILITIES

Facilities Improvements: FAC2

- A. Permanent administrative facilities are constructed to be compatible with this Land Use Designation objective.

FIRE

Fire Suppression: FIRE12

Suppression Action

- A. All wildfires will be suppressed using the suppression option identified in the Southeast Alaska/Prince William Sound Fire Management Plan. An Escaped Fire Situation Analysis (EFSA) of expected fire behavior, time of year, and locations with respect to private land and adjacent land use areas, may lead to a lower strategy. If an EFSA discloses no adverse effects and it is more cost-efficient, the lower strategy will be used.
- B. Suppression tactics are limited only by the standards and guidelines for the Land Use Designation, such as soil and water.

Fuel Improvements: FIRE2

Prescribed fire

- A. Management-ignited prescribed fire may be used for fuels management, insect and disease protection, silvicultural site preparation, and wildlife habitat improvement.
- B. Prescribed natural fire will not be used in this Land Use Designation.

FOREST HEALTH

Forest Health Management: HEALTH1

- A. Forest insect and disease management activities emphasize forest health through manipulating insects and diseases to desirable levels.
 - 1. Encourage timber stand improvement, sanitation, and salvage.
 - 2. Evaluate chemical, cultural, mechanical, biological and "no action" to manipulate insects and diseases to desirable levels.

Forest Insect and Disease Survey and Inventory: HEALTH2

- A. Survey and inventory visible outbreaks.

HERITAGE

Heritage Resource Activities: HER

Inventory

- A. Provide heritage resource assistance to all development proposals. Coordination includes participation and support for environmental analysis, inventory, evaluation, assessment, monitoring and protection of heritage resources during activities.
 - 1. Heritage Resource inventory will be accomplished during project planning. SHPO concurrence and Forest Supervisor approval is required prior to implementation.

2. Heritage Resource Specialists shall provide input on known or predicted heritage resource site density in proposed project areas and make recommendations to manage heritage resources.
3. Should any heritage resources be discovered during project activity, all work within the vicinity of the discovery shall cease until a Heritage Resource Specialist is able to evaluate the situation and resumption of activity is approved by the Forest Supervisor.

KARST AND CAVES Cave Management Program: CAVE

- A. Identify opportunities for interpretation of caves for public education and enjoyment. Interpretation may occur inside or outside of this LUD.

LANDS

Special Use Administration (Non-Recreation): LAND122

- A. Authorize only those uses which are compatible with Land Use Designation objectives. Avoid issuing, or limit the duration of, permits for uses which require natural surroundings.
- B. This Land Use Designation represents a Transportation and Utility Systems (TUS) "Window" and provides opportunities for the future designation and location of transportation and utility sites or corridors.

Landline Location and Maintenance: LAND231, LAND24

- A. Provide adequate landline marking for Forest Service contractors.
 1. Prior to Forest Service management activities, survey, mark, and post the boundary of National Forest lands, to Forest Service standards, where there is risk of trespass.

**MINERALS &
GEOLOGY**

Minerals and Geology Resource Preparation: MG11

Resource Preparation

- A. Coordinate the location of timber and mining transportation systems when feasible.
- B. Coordinate with claimant to ensure the location of timber sale units and roads across mining claims do not interfere with mining activities, markers, and improvements.

Minerals and Geology Administration: MG12

Forest Lands Open to Mineral Entry

- A. Forest lands within this Land Use Designation are open to mineral entry.
- B. Assure prospectors and claimants their right of ingress and egress granted under the General Mining Law of 1872, ANILCA, and National Forest Service Mining Regulations 36 CFR 228.
- C. Permit reasonable access to mining claims in accordance with the provisions of an approved Plan of Operations.

Plan of Operations

- A. Work with claimant to develop a Plan of Operations that is compatible with the emphasis of this Land Use Designation. Include mitigation measures that are compatible with the scale of proposed development

and commensurate with potential resource impacts. Apply the following management practices to reduce resource impacts.

1. Manage mineral activities to maintain the present and continued productivity of anadromous fish and other foodfish habitat to the maximum extent feasible. (Consult ANILCA, Sec. 505 (a).)
2. Apply appropriate Transportation Forest-wide Standards and Guidelines to the location and construction of mining roads and facilities.
3. Take advantage of topographic and vegetative screening when locating drill rigs and pumps, roads, rock quarries, structures, and marine transfer facilities.
4. Ensure tha disturbed area are revegetated in accordance with project plans.
5. Approve reclamation plans in which minerals activities leave a natural-appearing condition.

RECREATION AND TOURISM

Recreation Use Administration: REC122

Recreation Settings

- A. Provide a spectrum of outdoor recreation and tourism opportunities consistent with the objectives of this Land Use Designation.
 1. Provide the existing recreation settings and opportunities until approved activities change the ROS setting(s). Manage recreation and tourism use in a manner that is compatible with the timber production objectives.
 2. In locations where approved activities change the recreation setting(s), manage the new setting(s) with the appropriate ROS guidelines (generally Roaded Modified).
 3. Seek to maintain the recreation opportunity along existing trail corridors by minimizing road crossings and clearing directly adjacent to the trail.
 4. Seek to minimize impacts to areas directly adjacent to developed recreation and tourism facilities (such as cabins and campgrounds) through scheduling and location of project activities.

Recreation Special Uses

- A. Major and minor developments may be compatible with the LUD objectives depending on the scope, purpose, and magnitude of the proposal. Proposals will be evaluated on a case-by-case basis.

SCENERY

Scenery Operations: VIS1

- A. Timber management activities may dominate the visual character of the landscape.
 1. Apply Forest-wide Standards and Guidelines for the Modification VQO in the foreground distance zone of Visual Priority Travel Routes and Use Areas (see Appendix F) and the Maximum Modification Visual Quality Objective for all other areas. This objective defines the maximum limit of allowable change to the visual character of the area; less visible evidence of activities is acceptable.

2. Consider roadside clean up as a mitigation measure when recreational use is included as a road management objective for the proposed road.
3. In areas visible from Visual Priority Travel Routes and Use Areas, incorporate landscape design techniques in the planning process to the extent that they are compatible with LUD objectives.

SOIL AND WATER

Watershed Resource Planning: S&W112

- A. Delineate the location of high hazard soils, riparian, and other sensitive areas on project maps to insure their recognition, proper consideration, and protection on the sale area.
- B. Manage nondesignated domestic water use watersheds for multiple use while providing water suitable for human consumption under of State Water Quality Standards and water supply regulations.
- C. Apply Best Management Practices (BMP's) to all land-disturbing activities as a process to protect the beneficial uses of water from non-point sources of pollution. (Note: Appendix C of this plan includes a summary of Best Management Practices which are found in Chapter 10 of the Soil and Water Conservation Handbook, 2502.22). Also consult FSM 2530, Forest-wide Standards and Guidelines for Facilities & Transportation, U.S. Army Corps of Engineers Regulations (33 CFR 323.4) and the Clean Water Act.

Watershed Resource Improvements: S&W2

- A. Accomplish soil and water improvement projects on nondesignated domestic water use watersheds to prevent degradation of water quality below the State of Alaska's Water Quality Standard for domestic use.

TIMBER

Timber Resource Planning: TIM112

- A. Timber management is emphasized. Suitable forested land is available for harvest and is included in the Allowable Sale Quantity calculation. Tentatively suitable lands assigned to no harvest prescriptions by standard or guideline or Land Use designation are unsuitable and not included in the Allowable Sale Quantity calculation.
- B. Personal use wood and Christmas tree cutting activities are fully compatible with this Land Use Designation.

Timber Resource Coordination: TIM113

- A. Emphasize timber objectives in project analysis, development of environment documents, and design as well as other resource consideration deemed appropriate by the responsible official.

Timber Sale Preparation: TIM114

- A. Locate and design timber harvest activities primarily to meet timber objectives. Include integration of other resources objectives, particularly wildlife and vegetative diversity, if they do not have a significant adverse impact on the timber resource goals. Even-aged, two-aged, and uneven-aged silvicultural systems are available.
- B. The following guidelines provide direction for timber harvest activities to meet Visual Quality Objectives (VQO) and Visual Absorption

Capability (VAC) settings. The guidelines define the maximum allowable disturbance for timber harvest. Ground conditions may indicate a need to be more or less restrictive in scheduling harvest to meet the intent of the Visual Quality Objective.

1. *Modification* - Management activities may dominate the characteristic landscape, yet will be designed to borrow from form and line found in the naturally-occurring landscape.
 2. *Maximum Modification* - This VQO allows management activities to dominate the seen area. In timber harvest activities, design activities to resemble natural occurrences as viewed in the background distance zone.
- C. The guidelines below provide specific visual mitigation measures appropriate to timber management.
1. The ability to attain the adopted Visual Quality Objective is dependent on many variables. Visual Absorption Capacity (VAC) is an estimate of the relative ability of a landscape to absorb management activities. A Low VAC setting generally has steep slopes, with little landscape variety, while a High VAC setting is relatively flat and/or has a high degree of variety in the landscape.
 2. The unit sizes listed below provide guidance to the project IDT. Each landscape setting is different and should be evaluated on a case-by-case basis. There may be instances where the visual objective can be attained while the unit size is greater than the guideline, and there also may be instances where the unit must be smaller to meet the intent of the Visual Quality Objective.
 3. The following describes typical regeneration methods and approximate unit sizes for landscapes of different visual absorption capabilities for the VQOs adopted in this LUD.
 - * *VQO Modification:*
 - Low : Clearcut (appx. 15 - 40 acres)
 - Intermediate : Clearcut (appx. 40 - 60 acres)
 - High : Clearcut (appx. 80 - 100 acres)
 - * *VQO Maximum Modification:*
 - Low : Clearcut (appx. 50 - 75 acres)
 - Intermediate : Clearcut (appx. 80 - 100 acres)
 - High : Clearcut (appx. 80 - 150 acres)
- D. Final harvest will be equal to or greater than 95 percent of CMAI - culmination of mean annual increment (the age at which the volume increment for a stand of trees has achieved its highest mean volume).
- E. Consult Forest-wide Timber Standards and Guidelines for maximum sizes of created openings.
- F. Seek to provide for windfirm boundaries. To design for windfirmness, consider conditions such as soils, local wind patterns, tree height and size, and other site-specific factors.

TRANSPORTATION Transportation Operations: TRAN1

- A. Develop and manage cost-effective transportation systems which integrate resource requirements consistent with Land Use Designation direction.
 1. Perform integrated logging system and transportation system analysis to determine the least-cost facility (considering cost of

construction, maintenance, and hauling) and design standards necessary to meet Land Use Designation objectives.

2. If the need to restrict access is identified during project interdisciplinary review, roads will be closed, either seasonally or yearlong, to minimize adverse effects on fish and wildlife.
3. Consider future recreational access in location and design of roads.
4. Seek to avoid road crossings on existing trails or locating the road parallel to a trail. Should no other reasonable alternative exist, minimize site disturbance visible from trails. Locate rock source development away from the trail to the extent possible while meeting the objectives of this Land Use Designation.

WILDLIFE

Wildlife Habitat Planning: WILD112

- A. Use existing inventories and evaluate the need for further project-specific inventories of wildlife habitat conditions during project analysis.
 1. Select Management Indicator Species (MIS) appropriate to the project area for project analysis. (See also Wildlife Forest-wide Standards & Guidelines.)
- B. Consider wildlife habitat needs during project planning and implementation.
 1. Use the habitat needs of MIS to evaluate opportunities for, and consequences on, wildlife.

MINERALS

Land Use Designation MM

Goals

To encourage the prospecting, exploration, development, mining, and processing of locatable minerals in areas with the highest potential for minerals development.

To insure that minerals are developed in an environmentally sensitive manner, and that other high-valued resources are considered when minerals developments occur.

Objectives

Apply the standards and guidelines of this Land Use Designation to the project area upon approval of a Plan of Operations for minerals activities, when such activities may result in significant surface disturbances. Prior to this event, the standards and guidelines of the underlying Land Use Designation(s) apply.

For minerals activities:

- authorize special uses which facilitate such activities;
- allow reasonable access, consistent with other resource values;
- apply the Modification Visual Quality Objective to foreground areas viewed from the Visual Priority Travel Routes and Use Areas (Appendix F); otherwise, the Maximum Modification objective applies;
- maintain present and continued soil productivity and water quality to the extent feasible. Apply Best Management Practices to meet State Water Quality Standards.

For non-minerals activities:

- authorize special uses that will not substantially conflict with present or anticipated mineral-related activities;
- limit new recreation facilities to those compatible with mineral developments;
- manage recreation settings and opportunities to be as compatible as possible with the initial Land Use Designation.

Maintain the present and continued productivity of anadromous fish and other foodfish habitat, and wildlife habitats, to the maximum extent feasible. Stress the protection of fish and wildlife habitats to prevent or minimize the need for mitigation.

Rehabilitate soil and water resources and fish and wildlife habitats after the completion of mining operations.

After the completion of mining activities and restoration, manage the area according to the original Land Use Designation.

Desired Future Condition

During mining operations, mining activities are limited to the area necessary for their efficient, economic, and orderly development. Mining is carried out so that any effects on other resources are minimized to the extent feasible, and all minimum legal resource protection requirements are met. Other resources uses and activities in the area do not conflict with mining operations. After the completion of mining, affected areas are rehabilitated and, in most cases, the area once again provides the settings and opportunities of the original Land Use Designation.

At-a-Glance . . .

Facilities	Generally, administrative facilities may be co-located with facilities authorized in the Plan for Operations.
Fire	All wildfires are suppressed using a suppression action that minimizes fire suppression costs and resource damage. Prescribed fire may be used for silvicultural site preparation, wildlife habitat improvement, and forest health.
Fish	Mineral management activities are designed to maintain the present and continued fish productivity of anadromous fish and other foodfish habitat to the maximum extent feasible.
Forest Health	Forest health is maintained by applying forest health management practices consistent with Land Use Designation objectives.
Heritage Resources	Locate, evaluate, and protect significant heritage resources. Interpretation may be provided.
Lands	Generally, special uses which facilitate mineral-related activities are authorized, but evaluation of alternative facility designs and locations, including off-site locations, is encouraged. Non-mineral-development related uses are generally authorized if they do not substantially conflict with present or anticipated mineral-related activities.
Minerals	Locatable minerals management activities are emphasized. Management should facilitate the prospecting, exploration, development, mining, and processing of mineral resources.
Recreation/Tourism	New investments in recreation facilities are limited to those compatible with mineral developments. Recreation settings are managed to be as compatible as possible with the initial Land Use Designation.
Scenery	The characteristic landscape may be dominated by activities associated with mineral development. Although minerals activities may dominate the seen area, they are designed with consideration for existing form, line, and texture found in the landscape.
Soil and Water	Mineral management activities are designed to maintain the present and continued productivity of soil and water resources to the extent feasible. Apply Best Management Practices to meet State Water Quality Standards.
Subsistence	Subsistence use is allowed in accordance with applicable Federal and state regulations.
Timber	Timber land suitability is based on the initial Land Use Designation. Where the initial Land Use Designation allows timber harvest, scheduled timber harvest may be coordinated with mining activities. Personal use woodcutting activities are based on the underlying Land Use Designation until the mineral prescription is implemented. After implementation, access for personal use wood and Christmas trees is subject to the approved Plan of Operations.

Transportation

Reasonable access is authorized, consistent with other resource values, to allow for the exploration and development of mineral resources. Roads in LUD may be closed to public use.

Wildlife

Mineral management activities are designed to maintain the present and continued productivity of wildlife habitat to the extent feasible.

Apply the following Forest-wide Standards & Guidelines located in Chapter 4:

RESOURCE	SECTION	SUB-SECTIONS	PAGE
AIR	AIR	All	4-2
BEACH AND ESTUARY FRINGE	BEACH1 BEACH2	All I,II(A-G,K,L,N)	4-3
BIODIVERSITY	BIO	I(A:1-5)	4-7
FACILITIES	FAC	All	4-9
FIRE	FIRE	All	4-10
FISH	FISH	All	4-12
FOREST HEALTH	HEALTH	All	4-18
HERITAGE RESOURCES	HER	All	4-19
KARST AND CAVE RESOURCES	KARST,CAVE	All	4-23
LANDS	LAND	All	4-26
LAW ENFORCEMENT	LAW	All	4-39
MINERALS AND GEOLOGY	MG11 MG12	All II-VII	4-40
RECREATION AND TOURISM	REC	All	4-42
RIPARIAN	RIP	All	4-61
RURAL DEVELOPMENT	RUR	All	4-80
SCENERY	VIS1,12 VIS11	All I(A-D)	4-81
SOIL AND WATER	S&W	All	4-89
SUBSISTENCE	SUB	All	4-93
THREATENED, ENDANGERED, SENSITIVE	TE&S	All	4-95
TIMBER	TIM	All	4-101
TRAILS	TRAI	All	4-112
TRANSPORTATION	TRAN	All	4-115
WETLANDS	WET	All	4-123
WILDLIFE	WILD	All	4-124

Apply the following Land Use Designation Standards & Guidelines:

FACILITIES

Administrative Facilities: FAC

- A. Generally, co-locate administrative facilities with facilities authorized in the Plan of Operations.

FIRE

Fire Suppression: FIRE12

Suppression Action

- A. All wildfires will be suppressed using the suppression option identified in the Southeast Alaska/Prince William Sound Fire Management Plan. An Escaped Fire Situation Analysis (EFSA) of expected fire behavior, time of year, and locations with respect to private land and adjacent land use areas, may lead to a lower strategy. If an EFSA discloses no adverse effects and it is more cost-efficient, the lower strategy will be used.
- B. Suppression tactics are limited only by the standards and guidelines for this Land Use Designation.

Fuel Improvements: FIRE2

Prescribed fire

- A. Management-ignited prescribed fire may be used for fuels management, insect and disease protection, silvicultural site preparation and wildlife habitat improvement.
- B. Prescribed natural fire will not be used in this Land Use Designation.

FISH

Fish Habitat Planning: FISH112

Planning/mitigation

- A. Maintain the present and continued productivity of anadromous fish and other foodfish habitat to the maximum extent feasible. (Consult ANILCA Sec. 505 (a).)
- B. Stress protection of fish habitat to prevent the need for mitigation. Mitigation, rehabilitation and monitoring of mining impacts to fish habitat or populations shall be identified in environmental documents and plans of operation.
- C. Consider the need to maintain instream flows for fish during the development of minerals management activities.

FOREST HEALTH

Forest Health Management: HEALTH1

- A. For Land Use Designations that permit timber harvest, emphasize timber stand improvement, sanitation, salvage, and insect and disease management measures consistent with the Land Use Designation objectives.
- B. For Land Use Designations that do not permit timber harvest, apply insect and disease management measures consistent with this Land Use Designation to protect these and adjacent resources.

Forest Insect and Disease Survey and Inventory: HEALTH2

- A. Survey and inventory visible outbreaks annually.

HERITAGE

Heritage Resource Activities: HER

Inventory

- A. Provide heritage resource assistance to all development proposals. Coordination includes participation and support for environmental analysis, inventory, evaluation, assessment, monitoring and protection of heritage resources during activities.
 - 1. Heritage Resource inventory will be accomplished during project planning. SHPO concurrence and Forest Supervisor approval is required prior to implementation.
 - 2. Heritage Resource Specialists shall provide input on known or predicted heritage resource site density in proposed project areas and make recommendations to manage heritage resources.
 - 3. Should any heritage resources be discovered during project activity, all work within the vicinity of the discovery shall cease until a heritage resource specialist is able to evaluate the situation and resumption of activity is approved by the Forest Supervisor.

KARST AND CAVES

Cave Management Program: CAVE

- A. Identify opportunities for interpretation of caves for public education and enjoyment. Interpretation may occur inside or outside of this LUD.

LANDS

Special Use Administration (Non-Recreation): LAND122

- A. Generally, authorize special uses to facilitate mineral-related activities.
 - 1. Evaluate alternative facility designs and locations (including off-site) which consider: 1) amount of land disturbance; 2) effects on other resources; and, 3) effects resulting from human use.
- B. Generally, authorize non-mineral development related uses if they do not substantially conflict with present or anticipated mineral-related activities.
 - 1. Use temporary or annual permits which maintain options for future mineral development.
- C. This Land Use Designation represents either a Transportation and Utility Systems (TUS) "Window" or "Avoidance Area" depending upon the TUS category of the initial Land Use Designation.

MINERALS GEOLOGY

Minerals and Geology Resource Preparation: MG11

Resource Preparation

- A. Emphasize minerals management activities. Management should facilitate the prospecting, exploration, development, mining, and processing of mineral resources in areas with the highest potential for development.
- B. Prior to the initiation of mineral activities, manage these lands under their initial Land Use Designation in the Forest Plan. With the initiation of mineral activities, apply reasonable regulation of surface occupancy

and use to manage the mineral development to be as compatible as possible with the initial Land Use Designation.

- C. The minerals land use prescription will apply upon approval of a Plan of Operations. Those portions of the initial Land Use Designation not identified for mineral activity in an approved Plan of Operations will continue to be managed under the initial Land Use Designation. After mineral operations are completed, lands allocated under the minerals prescription will revert to the initial Land Use Designation to the extent possible.

Minerals and Geology Administration: MG12

Forest Lands Open to Mineral Entry

- A. Forest lands within this Land Use Designation are open to mineral entry.
- B. Assure prospectors and claimants their right of ingress and egress granted under the General Mining Law of 1872, ANILCA, and National Forest Service Mining Regulations 36 CFR 228.

Plan of Operations

- A. Encourage the use of state-of-the-art techniques to develop mineral resources, while reducing impacts to other resources to the extent feasible. The economic practicality of the protection measures must be considered while planning mineral activities. Include mitigation measures that are compatible with the scale of proposed development and commensurate with potential resource impacts.

RECREATION AND TOURISM

Recreation Use Administration: REC122

Recreation Settings

- A. Prior to the initiation of mineral development, provide recreation settings and opportunities consistent with the initial Land Use Designation.
 - 1. For any new investment in recreation facilities, consider the potential effects to those facilities by future minerals development.
- B. With the initiation of mineral development, manage the recreation setting in a manner as compatible as feasible with the initial Land Use Designation.
 - 1. Provide the existing recreation settings and opportunities until scheduled activities and practices change the ROS settings. Manage recreation use in a manner that is compatible with the mineral objectives.
 - 2. In locations where scheduled activities change the recreation setting(s), manage the new setting(s) with the appropriate ROS guidelines (generally Road Modified).
 - 3. Seek to maintain the recreation experience along existing trail corridors by locating road crossings and clearing so they are not directly adjacent to the trail when feasible.
 - 4. Seek to minimize impacts to areas directly adjacent to developed recreation facilities (such as cabins and campgrounds).
 - 5. Consider regulating recreation use and access to mitigate for the minerals development.

6. Manage public use of mining access roads and development areas to be consistent with the new ROS class, unless recreation analysis indicates a need for a modified ROS class.
7. Where effects on existing maintained recreation facilities and trails cannot be avoided due to mineral development, analyze alternatives for reasonable substitute facilities.

Recreation Special Uses

- A. Major and minor developments may be compatible with the LUD objectives depending on the scope, purpose, and magnitude of the proposal. Proposals will be evaluated on a case-by-case basis.

SCENERY

Scenery Operations: VIS1

- A. Prior to the initiation of mineral development, manage for visual quality according to the initial Land Use Designation.
- B. With the initiation of mineral development, apply Forest-wide Standards and Guidelines for Modification in the foreground distance as seen from Visual Priority Travel Routes and Use Areas (see Appendix F) and for the Maximum Modification VQO in all other areas. The objective defines the maximum limit of allowable change to the visual character of the area; less evidence of visual change is acceptable.
 1. Incorporate landscape design techniques to reduce adverse visual impact in areas visible from sensitive travel routes.

SOIL AND WATER

Watershed Resource Planning: S&W112

- A. For use in designing mineral management activities, delineate the location of important soil and water protection areas on project maps to insure their recognition, proper consideration, and protection on the project area.
- B. Manage watersheds for beneficial uses consistent with State Water Quality Standards. Apply Best Management Practices to control nonpoint sources of water pollution.
- C. Design mineral management activities to maintain the present and continued productivity of soil and water resources to the extent feasible.
- D. Stress protection of soil and water resources to prevent the need for mitigation. Identify mitigation, rehabilitation, and monitoring of mining impacts to soil and water resources in environmental documents and plans of operation.

TIMBER

Timber Resource Planning: TIM112

- A. Timber land suitability is based on the initial Land Use Designation.
- B. For areas where the initial Land Use Designation allows timber harvest, suitable forested land is available for harvest and is included in the allowable sale quantity, although any timber associated with mineral access and facility development is nonchargeable to the allowable sale quantity.
- C. For the portions of this Land Use Designation with initial direction that does not allow timber harvest, the forested land is classified as

unsuitable for timber production and withdrawn from the timber base.

- D. Personal use woodcutting activities will be based on the underlying management prescription until the mineral prescription is implemented. After implementation, access for personal use wood and Christmas trees will be subject to provisions compatible with the Plan of Operations.

Timber Resource Coordination: TIM113

- A. Project analysis, development of environmental documents and project design will facilitate the probable future mineral development to the maximum extent feasible.

Timber Sale Preparation: TIM114

- A. Where possible, coordinate the location and design of timber harvest activities with planned or potential mineral development.

TRANSPORTATION

Transportation Operations: TRAN1

- A. Authorize reasonable access, consistent with other resource values, to allow for the exploration and development of mineral resources.
- B. Any transportation development in association with minerals extraction will be in accordance with an approved Plan of Operations, and subsequent annual work plans.
- C. Roads in this Land Use Designation may be closed to public use.
- D. Apply Best Management Practices in the development and maintenance of transportation facilities.

WILDLIFE

Wildlife Habitat Inventory: WILD111

- A. Prior to the development of minerals management activities, establish or use existing baseline wildlife inventories.

Wildlife Habitat Planning: WILD112

- A. Maintain the present and continued productivity of wildlife habitat to the extent feasible.
- B. Address protection of wildlife habitat and the need for mitigation. Identify any need for mitigation, rehabilitation and monitoring of mining impacts to wildlife habitat or populations in environmental documents and Plans of Operation.
- C. Coordinate road management with the needs of wildlife.

TRANSPORTATION AND UTILITY SYSTEM

Land Use Designation TUS

Goals

To provide for, and/or facilitate the development of, existing and future major public transportation and utility systems, including those identified by the State of Alaska and the Alaska Energy Authority.

Objectives

Apply the standards and guidelines of this Land Use Designation to existing major systems, and to future systems when approval for construction is granted. Prior to this event, the standards and guidelines of the underlying Land Use Designation(s) apply.

For application of this Land Use Designation, "major systems" are defined as state and Federal highways, railroads, powerlines 66 KV or greater, and pipelines 10 inches or greater in diameter.

Allow special uses and facilities not related to transportation or utility systems, if compatible with present or future systems.

If the development of systems changes the Recreation Opportunity System setting, manage recreation and tourism opportunities in accordance with the new setting. Consider the development of recreation and tourism facilities in conjunction with the planning of state or Federal highways or reservoirs.

Following construction of systems, lands in the right-of-way, if permanently cleared, will be considered unsuitable for timber production.

Transportation and utility corridors, to the extent feasible, should follow the same route.

Transportation and utility systems may dominate the seen foreground area, yet are designed with consideration for the existing form, line, color, and texture of the characteristic landscape.

Minimize and/or mitigate adverse effects to wildlife habitat and populations to the extent feasible.

Maintain the present and continued productivity of anadromous fish and other fish habitat to the extent feasible.

Desired Future Condition

Transportation and utility systems have been constructed in an efficient and economic manner, and have been designed to be compatible with the adjacent Land Use Designation to the maximum extent feasible. The minimum land area consistent with an efficient, safe facility is used for their development. Effects on other resources have been recognized and resource protection has been provided. Other resources uses and activities in the area do not conflict with utility operations. State and Federal highways and reservoirs offer new developed recreation opportunities, as appropriate.

At-a-Glance . . .

Facilities	Administrative facilities which are compatible with present and/or future uses of this LUD are allowed.
Fire	All wildfires are suppressed using a suppression action that minimizes fire suppression costs and resource damage. Management-ignited prescribed fires are allowed in this LUD.
Fish	Management activities are designed to maintain the present and continued fish productivity of anadromous fish and other fish habitat to the extent feasible. Fisheries enhancement structures or activities are allowed.
Forest Health	Insect and disease management activities are encouraged to maintain or improve forest health in this and adjacent Land Use Designations.
Heritage Resources	Locate, evaluate and protect significant heritage resources. Interpretation may be provided.
Lands	Special use authorizations not related to transportation or utilities may be issued, if compatible with present or future transportation and utility uses.
Minerals	Sites and corridors may or may not be open to mineral entry, depending on the underlying Land Use Designation.
Recreation/Tourism	Recreation facilities may be constructed in conjunction with the development of state and Federal highways and reservoirs. Recreation and tourism use may be encouraged or discouraged on a case-by-case basis.
Scenery	The landscape may be dominated by activities associated with Transportation and Utility Systems. Although TUS developments may dominate the seen area, they are designed with consideration for existing form, line, color, and texture found in the characteristic landscape.
Soil and Water	Mitigation may be required to maintain high water quality. Soil cover is maintained.
Subsistence	Subsistence use is allowed in accordance with applicable Federal and state regulations.
Timber	Prior to construction, timber suitability is based on the existing Land Use Designation. Following construction, if lands are permanently cleared, the right-of-way is considered unsuitable for timber production. Personal use woodcutting activities are compatible with this Land Use Designation provided that management objectives are met.
Transportation	Corridors for future utilities follow existing and planned land transportation routes to the extent feasible.
Wildlife	To the extent feasible, management activities are designed to minimize effects on wildlife habitats.

Apply the following Forest-wide Standards & Guidelines located in Chapter 4:

RESOURCE	SECTION	SUB-SECTIONS	PAGE
AIR	AIR	All	4-2
BEACH AND ESTUARY FRINGE	BEACH	All	4-3
BIODIVERSITY	BIO	All	4-7
FACILITIES	FAC	All	4-9
FIRE	FIRE	All	4-10
FISH	FISH	All	4-12
FOREST HEALTH	HEALTH	All	4-18
HERITAGE RESOURCES	HER	All	4-19
KARST AND CAVE RESOURCES	KARST, CAVE	All	4-23
LANDS	LAND	All	4-26
LAW ENFORCEMENT	LAW	All	4-39
MINERALS AND GEOLOGY	MG11,12	All	4-40
RECREATION AND TOURISM	REC	All	4-42
RIPARIAN	RIP	All	4-61
RURAL DEVELOPMENT	RUR	All	4-80
SCENERY	VIS1,12 VIS11	All I(A-D)	4-81
SOIL AND WATER	S&W	All	4-89
SUBSISTENCE	SUB	All	4-93
THREATENED, ENDANGERED, SENSITIVE	TE&S	All	4-95
TIMBER	TIM111,111-1 TIM114	All VIII	4-101
TRAILS	TRAI	All	4-112
TRANSPORTATION	TRAN	All	4-115
WETLANDS	WET	All	4-123
WILDLIFE	WILD	All	4-124

Apply the following Land Use Designation Standards & Guidelines:

FACILITIES

Facilities Improvements: FAC2

- A. Allow administrative facilities which are compatible with present and/or future site uses.

FIRE

Fire Suppression: FIRE12

Suppression Action

- A. All wildfires will be suppressed using the suppression option identified in the Southeast Alaska/Prince William Sound Fire Management Plan. An Escaped Fire Situation Analysis (EFSA) of expected fire behavior, time of year, and locations with respect to private land and adjacent LUD's, may lead to a lower strategy. If an EFSA discloses no adverse effects and it is more cost-efficient, the lower strategy will be used.
- B. Suppression tactics are limited only by the standards and guidelines for this Land Use Designation, such as soil, water quality, and scenery.

Fuel Improvements: FIRE2

Prescribed fire

- A. Management ignitions may be used as an acceptable means of fuels management as long as its use is compatible with the standards and guidelines for this Land Use Designation.
- B. Prescribed natural fire will not be used in this Land Use Designation.

FISH

Fish Habitat Planning: FISH112

Planning/mitigation

- A. Design transportation and utility system activities to maintain the present and continued productivity of anadromous fish and other fish habitat to the extent feasible.
- B. Stress protection of fish habitat to prevent the need for mitigation. Mitigation, rehabilitation, and monitoring of impacts to fish habitat or populations shall be identified in environmental documents.

Enhancement

- A. Allow fish enhancement activities.

FOREST HEALTH

Forest Health Management: HEALTH1

- A. Encourage insect and disease management activities to maintain or improve forest health in this and adjacent Land Use Designations.

- B. Permit timber sanitation and salvage.

Forest Insect and Disease Survey and Inventory: HEALTH2

- A. Survey and inventory visible outbreaks annually.

HERITAGE

Heritage Resource Activities: HER

Inventory/Evaluation

- A. Develop priorities and schedule management activities to implement heritage resource inventory, evaluation, protection, and interpretation within this Land Use Designation.
 - 1. Identify, classify, and evaluate known heritage resources.
 - 2. Identify heritage properties to be nominated to the National Register of Historic Places.
 - 3. Identify heritage properties that require stabilization or other protective measures.
 - 4. Identify opportunities for interpretation of heritage resources for public education and enjoyment.

KARST AND CAVES

Cave Management Program: CAVE

- A. Identify opportunities for interpretation of caves for public education and enjoyment. Interpretation may occur inside or outside of this LUD.

LANDS

Special Use Administration (Non-Recreation): LAND122

Transportation and Utility Systems

- A. Manage special use authorizations related to transportation and utility systems according to the following standards and guidelines.
 - 1. Coordinate special use proposals with state and Federal Agencies, such as the Federal Energy Regulatory Commission (FERC), the Federal Highway Administration, or Alaska Department of Transportation. Analyze new proposals on a case-by-case basis, using an interdisciplinary process. Obtain input from local communities and other affected publics.
 - 2. Use designated corridors for multiple compatible transportation and utility systems to the extent feasible.
 - 3. Require proponents of hydroelectric power projects to obtain a license or exemption from the FERC as a condition of project approval by the Forest Service.
 - 4. Leave transportation and utility corridors open to public use unless special considerations, such as public safety or resource damage, warrant closures or restrictions.
 - 5. Bury or submerge powerlines where it is feasible.

Other Special-Use Authorizations

- A. Allow special uses not related to utilities, if compatible with present or future utility uses.
 - 1. Determine through an interdisciplinary process on a case-by-case basis, if non-related uses are compatible.
 - 2. Consult with current authorization holders to consider compatibility of new uses.

MINERALS GEOLOGY

Minerals and Geology Resource Preparation: MG11

- A. Coordinate with claimant to ensure the location of roads, transmission lines, and pipelines across mining claims do not interfere with mining activities, markers, or improvements.

Minerals and Geology Administration: MG12

Mineral Entry

- A. Depending on the underlying Land Use Designation, sites and corridors may or may not be open to mineral entry. Apply Forest-wide Minerals, Geology and Caves Standards and Guidelines appropriate to either open or closed mineral entry.
- B. Permit reasonable access to mining claims with valid existing rights in accordance with the provisions of an approved Plan of Operations.

Plan of Operations

- A. Where minerals resources are developed, encourage use of state-of-the-art techniques for developing them, to reduce impacts to the extent reasonable, based on the objectives of the initial Land Use Designation. Include mitigation measures that are compatible with the scale of proposed development and commensurate with potential resource impacts.
- B. Apply appropriate Transportation Forest-wide Standards and Guidelines to the location and construction of mining roads.

RECREATION AND TOURISM

Recreation Use Administration: REC122

Recreation Settings

- A. Provide for inventoried recreation settings and opportunities until the development of transportation and utility systems change the ROS setting(s).
- B. When transportation and utility systems are developed, consider construction of recreation facilities in conjunction with the planning of state and Federal highways and reservoirs.
 - 1. Manage the changed recreation setting with appropriate ROS guidelines.
 - 2. If necessary, discourage or restrict recreation use to prevent damage to facilities or to provide for public safety.
 - 3. Manage recreation use in a manner compatible with adjacent Land Use Designations.

Recreation Special Uses

- A. Major and minor developments may be compatible with the LUD objectives depending on the scope, purpose, and magnitude of the proposal. Proposals will be evaluated on a case-by-case basis.

SCENERY

Scenery Operations: VIS1

- A. The landscape may be dominated by activities associated with Transportation and Utility Systems. Although TUS developments may dominate the seen area, they are designed with consideration for existing form, line, color, and texture found in the characteristic landscape.
 - 1. Apply Forest-wide Standards and Guidelines for the Modification Visual Quality Objective. Perform viewshed analysis in conjunc-

- tion with project development to provide direction for retaining or creating a visually attractive landscape over time.
2. Work with topographic and vegetative features to screen the development when seen from Visual Priority Travel Routes and Use Areas (see Appendix F).
 3. Consider the following during the design phase of routes which are, or are seen from, Visual Priority Travel Routes and Use Areas (see Appendix F):
 - * Vegetation of slopes seen from the road
 - * Providing "planting pockets" or terraces or slopes, where needed
 - * Maintaining landforms through road location and design
 - * Breaking up the straight line effect of linear corridors by considering special treatment of vegetation on clearing slopes or application of other design techniques and principles
 - * Requiring roadside clean-up on all roads receiving general public use or expected to have such future use

SOIL AND WATER

Watershed Resource Planning: S&W112

- A. Delineate the location of high hazard soils, riparian, and other sensitive areas on project maps to insure their recognition, proper consideration, and protection on the sale area.

TIMBER

Timber Resource Planning: TIM112

- A. Prior to the construction of transportation or utility corridors, base timber suitability on the underlying (initial) Land Use Designation. Following construction, if the rights-of-way are permanently cleared, lands in the right-of-way are considered unsuitable for timber production.
- B. For areas where initial Land Use Designation authorizes timber harvest, suitable forested land is available for harvest and is included in the Allowable Sale Quantity calculation.
- C. For initial Land Use Designations which do not allow timber harvest, forested land is classified as unsuitable for timber production and withdrawn from the timber base. Any timber harvest associated with facility development is nonchargeable to the Allowable Sale Quantity.
- D. Following the construction of a Transportation and Utility System in an area with interim direction authorizing timber harvest, the right-of-way is considered unsuitable for timber production unless the utility is buried in the ground or is suspended above the maximum height of the trees.
- E. Personal use woodcutting activities are compatible with this Land Use Designation provided that management objectives are met.

TRANSPORTATION

Transportation Operations: TRAN1

- A. Locate and design Transportation and Utility Systems using opportunities to be compatible with the theme of the adjacent Land Use Designation to the maximum extent feasible.
- B. Follow existing and planned future land transportation routes with corridors for future utilities to the extent feasible.

1. Consider potential conflicts and opportunities with future roads, timber harvest, and other management activities.

WILDLIFE

Wildlife Habitat Inventory: WILD111

- A. Establish a baseline inventory, or use an existing inventory of wildlife habitat conditions, preceding or coinciding with transportation and utility systems development.

Wildlife Habitat Planning: WILD12

- A. Reduce impacts to wildlife habitat and populations to the extent feasible.
 1. Use the habitat needs of MIS to evaluate opportunities for wildlife.
 2. In the design of projects, consider measures which reduce or eliminate electrocution of animals on powerlines, prevent road kills, and provide for public safety.



Chapter 4

Forest-wide Standards and Guidelines

Chapter 4 - Forest-wide Standards and Guidelines

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CHAPTER 4 - FOREST-WIDE STANDARDS AND GUIDELINES

INTRODUCTION

Chapters 2, 3 and 4 of the Proposed Revised Forest Plan present the direction for managing the Tongass National Forest. The components of this direction are explained in Chapter 1. This chapter (Chapter 4) includes the Forest-wide Standards and Guidelines. These standards and guidelines for the protection or management of the different forest resources apply to all or most areas of the Forest, and are used in conjunction with additional standards and guidelines included within each management prescription. Each management prescription (Chapter 3) includes a table indicating which of the Forest-wide Standards and Guidelines apply to the area (land use designation) covered by that prescription. The Forest-wide Standards and Guidelines are organized by resource, as shown in the table of contents.

This chapter was developed to be applicable to all nine alternatives in the Revised Supplement. As such, options are indicated within the direction for several resources which apply only to specified alternatives. These occur within the Beach and Estuary Fringe, Riparian, and Wildlife sections, and are clearly indicated where they occur. **In these cases, only those options that are a part of the Preferred Alternative indicated in the cover letter are a part of the Proposed Revised Forest Plan.**

AIR

Forest-wide Standards & Guidelines

Air Resource Inventory: AIR111

I. *Baseline Quality and Values*

- A. During project planning, assess air quality conditions on National Forest lands by following direction in FSM 2580.

Air Resource Planning: AIR112

I. *Objective*

- A. The objective for the air resource, which is to be managed as a part of the forest ecosystem, is to maintain or improve National Forest air quality by preventing significant deterioration from Forest activities or other sources.
 - 1. Consider the air resource objectives when planning, designing, and implementing projects, which may affect the air resource, consistent with other multiple-use goals and objectives.

II. *Planning for the Maintenance of Air Quality*

- A. Plan to maintain current air quality, Forestwide.
 - 1. Manage on-Forest resource activities to control and minimize air pollution impacts and to ensure that predicted emissions from all pollution sources do not exceed ambient air quality standards as specified under the Alaska Administrative Code, Title 18, Chapter 50.
 - * Obtain burning permits from the Alaska Department of Environmental Conservation for all prescribed fire projects.
 - 2. Require permittees, contractors, and mine operators to apply for applicable state permits and meet State Air Quality Standards when conducting work on the Forest.
 - 3. Cooperate with regulatory authorities to prevent adverse effects of air pollutants and atmospheric deposition on forest ecosystems.

Air Coordination: AIR113

I. *Coordination with the State of Alaska*

- A. Cooperate with the Alaska Department of Environmental Conservation to protect the air resource on the National Forest. Join in the assessment of air quality monitoring needs and in the development or revisions of air quality standards and regulations, as needed.
- B. Review and comment on both proposed and existing sources of off-Forest pollution that may significantly affect ambient air quality on National Forest System lands.
- C. Review the requirements for proposed new emission sources under the Prevention of Significant Deterioration (PSD) Permitting Process.

BEACH AND ESTUARY FRINGE

Forest-wide Standards & Guidelines

Beach & Estuarine Description: BEACH1

I. *Objectives and Identification*

A. Management objectives of the beach and estuary fringe habitat:

1. To maintain the ecological integrity of beach and estuary fringe forested habitat to provide sustained natural habitat conditions and requirements for wildlife, fish, recreation, cultural, visual and other resources.
2. To provide a relatively continuous forested corridor linking terrestrial landscapes within islands.
3. To provide a variety of recreation opportunities, normally of a primitive or semi-primitive nature and retain the visual quality
4. To maintain an approximate 500-foot wide primary beach fringe and an additional approximate 500-foot wide extended beach fringe of old-growth forest to provide important habitats for eagles, deer, marten, otter, bear and other wildlife species strongly associated with this maritime influenced habitat. Old growth conifer forests are managed in near-natural undisturbed habitat conditions.
5. To maintain an approximate 1000-foot wide estuary fringe of old growth forest that contributes to maintenance of the ecological integrity of the biologically rich tidal and intertidal estuary zone. Habitats for shorebirds, waterfowl, bald eagles, and other marine-associated species are emphasized. Old-growth conifer stands, grasslands, wetlands, and other natural habitats associated with estuary areas above the mean high tide line are managed in near-natural, undisturbed habitat conditions.

B. Beach fringe identification:

1. Primary beach fringe:
 - a. The primary beach fringe is an area of essentially unmodified landscape of old growth forest that is approximately 500 feet slope distance inland from mean high tide around all coastline.
2. Extended beach fringe:
 - a. The extended beach fringe is an area of of essentially unmodified old growth forest that extends from approximately 500 feet to approximately 1000 feet slope distance inland from mean high tide around all coastline.

C. Estuary fringe identification:

1. The estuary fringe is an area of essentially unmodified old growth forest that is approximately 1000 feet slope distance inland from mean high tide around all identified estuaries. Estuaries are ecological systems at the mouths of streams where fresh and salt water mix, and where salt marshes and intertidal mudflats are present. The landward extent of an estuary is the limit of salt-tolerant vegetation, and the seaward extent is a stream's delta at mean low water.

D. Application

1. Apply the primary beach fringe in Alternatives 1,2,3,4,5,6, and 8.
2. Apply the extended beach fringe In Alternatives 1,3,4,5,6, and 8.

3. Apply the Estuary Fringe In Alternatives 1,2,3,4,5,6, and 8.

Beach & Estuarine Management: BEACH2

I. Coordination

- A. Coordinate activities which directly affect the Coastal Zone with the State of Alaska Office of Management and Budget, Division of Governmental Coordination, to ensure consistency, to the maximum extent practicable, with the Alaska Coastal Management Plan.

II. Management

- A. Management is governed by the Land Use Designation in which the beach or estuary area is located. Where development is restricted (more restricted than allowed in the following standards and guidelines), such as in the wilderness and most of the natural setting Land Use Designations, the standards and guidelines of those Land Use Designations will apply. Where the Land Use Designation allows land and habitat modification, such as in the moderate and intensive development Land Use Designations, the following standards and guidelines will apply.
- B. Allow facility developments which require water access, such as docks, floats, or boat ramps.
 - 1. Locate facilities more than 1000 feet from the mouths of intertidal channels of known Class I anadromous fish streams or tidal or subtidal beds of aquatic vegetation to avoid significant impairment.
 - 2. Limit filling of intertidal and subtidal areas to the extent feasible.
- C. Suppress wildfires using the options identified in the Southeast Alaska/Prince William Sound Fire Management Plan. Suppression tactics should emphasize the least possible disturbance or evidence of human presence.
 - 1. Rehabilitation of all campsites, suppression lines, and other evidence of human presence will occur as soon as it is safe, but within one year after the fire occurs.
- D. Permit reasonable access to mining claims in accordance with the provisions of an approved plan of operations. Assure prospectors and claimants their right of ingress and egress granted under the General Mining Law of 1872, ANILCA, and National Forest Mining Regulations 36 CFR 228.
 - 1. Take advantage of topographic and vegetative screening when locating drill rigs, pumps, roads, rock quarries, structures, and marine transfer facilities.
 - 2. For areas seen from Visual Priority Travel Routes and Use Areas (see Appendix F), mitigate the effects on the visual resource due to mining activities. Examples of mitigation may include: a) designing quarry walls to have an irregular back line or to be low in height; b) locating material sites outside this beach and estuarine area; c) minimizing the scale of spoil/disposal areas in relation to the surrounding landscape as seen from sensitive viewpoints; d) using colors that simulate those found in the characteristic landscape and avoiding the use of reflective materials in project facilities; e) revegetating disturbed areas in accordance with project plans; f) shaping landform modifications to simulate naturally-occurring forms; and, g) designing reclamation so minerals activities leave a natural-appearing condition.
 - 3. Apply timing restrictions to minerals activities to avoid adverse impacts to fish and wildlife resources during critical periods (e.g. spawning, calving, mating, molting, or brood-rearing).
- E. Emphasize natural recreation settings and continue to provide the spectrum of outdoor recreation and tourism opportunities.
 - 1. Where feasible, schedule activities to avoid change to the existing Recreation Opportunity Spectrum (ROS) class in marine recreation settings.

2. In locations where scheduled activities change the recreation setting(s), manage the new setting(s) in accordance with the appropriate ROS guidelines with emphasis on marine-related recreation activities.
 3. Design and locate recreation-related structures to be compatible with wildlife habitat needs. Manage user-created structures to maintain wildlife habitat values.
 4. Manage off-highway vehicle use to prevent degradation of lands or adverse disturbance of wildlife and fish populations.
 5. Manage recreation and tourism use to maintain habitat capabilities of fish and wildlife resources.
- F. Allow subsistence use of timber by permit in accordance with ANILCA, Title VIII. Personal use firewood is inconsistent with management objectives but allowed if limited to locally determined areas. Subsistence users must comply with regulations and Forest Plan standards and guidelines for bald eagle nests (and their associated 330 foot radius habitat management zones), and direction for other beach fringe and estuary resources.
- G. Beach log salvage is permitted.
- H. The primary beach fringe and estuary areas are classified as unsuitable for timber management and no commercial timber harvest is permitted.
- I. The extended beach fringe (approximately 500-1000 feet) is suitable for timber production using only uneven-aged management harvest techniques with the following standards:
1. Use only single tree or group selection with a maximum opening size of 2 acres. Manage for a distribution of opening sizes (range 0.1 to 2.0 acres) to emulate natural disturbance events and maintain old growth forest structure and composition at the landscape scale.
 2. Limit total disturbance to 10% of the area within a 100 acre contiguous analysis area every 5 decades.
 3. Total forest area removed for necessary roads or any catastrophic salvage contribute to the 10% maximum disturbance standard.
- J. Salvage will be limited to dead and/or down material resulting from catastrophic events (such as windthrow and insect or disease mortality). Limited standing green timber may be harvested during salvage operations for safety and operational considerations. Additional road construction is discouraged in beach and estuary fringes and in the extended beach fringe. Environmental analysis will determine if salvage sales are compatible with the objectives of the beach fringe and estuary area.
- K. Design proposed activities in the beach and estuary fringe to be subordinate to the characteristic landscape. Use existing form, line, color and texture found in the landscape.
1. In the beach and estuary fringe, apply the Forest-wide Standards and Guidelines for the Partial Retention Visual Quality Objective, as seen from Visual Priority Routes and Use Areas (see Appendix F). This objective defines the maximum limit of allowable change to the visual character of the area; less visible evidence of activities, particularly in the visual foreground as seen from saltwater, is desirable.
 2. This Visual Quality Objective does not affect the Visual Quality Objective in the remainder of the land allocation within which the beach fringe or estuarine area is located.
- L. If no prudent alternative is available, road corridors may be designated to provide access for other management activities in this or adjacent land use designations. Roads within the extended beach fringe are preferable to the primary beach or estuary fringe.
1. Perform integrated logging system and transportation analysis to determine if feasible upland road routes exist to avoid the primary beach, extended beach, and estuary area. Consider impacts to fish and wildlife, and road closure enforcement costs in this analysis.
 2. Determine road locations and road management objectives through the interdisciplinary team process. During development of road management objectives, give

special attention to wildlife and fish habitat needs and the anticipated effects of human use on the habitat and populations using the habitat.

* Provide or maintain recreational and community access where specifically determined necessary through interdisciplinary analysis.

3. To meet the Visual Quality Objective of Partial Retention, give special consideration to minimizing apparent landform modification as seen from Visual Priority Routes and Use Areas.
- M. Log transfer facilities may be constructed.
1. Use the Alaska Timber Task Force Siting Guidelines (see Appendix G & the log transfer facility standards and guidelines in the Transportation Forest-wide Standards and Guidelines section).
 2. To meet the Visual Quality Objective of Partial Retention, give special consideration to minimizing the visual impact of landform modification (as seen from Visual Priority Routes and Use Areas) during log transfer facility location, design, and construction.
 3. Roads and log transfer facilities located in the beach or estuary fringe should be cleared to the minimum feasible.
- N. Wildlife habitat restoration of young growth conifer stands is encouraged to accelerate development of advanced seral stand structure. Treatments may include thinning of young stands, release, pruning, and fertilization.

BIODIVERSITY

Forest-wide Standards & Guidelines

Biodiversity: BIO

i. *Planning and Managing Biodiversity*

- A. The objective is to manage for biodiversity (biological diversity) at multiple spatial scales (site, watershed, island, province, and Forest) to provide for the most appropriate mix of habitats which are capable of supporting the full range of sustainable and naturally occurring flora, fauna and ecological processes native to Southeast Alaska. Conduct watershed or landscape analyses to determine the appropriate abundance and juxtaposition of habitats to address this objective. No type conversions are authorized under this Plan.
 1. Maintain or restore habitats for the recovery and conservation of federally-listed threatened or endangered species. (Consult the Forest-wide Standards and Guidelines for Threatened, Endangered and Sensitive Species.)
 2. Provide for the conservation of sensitive species by reducing adverse impacts to species habitat whose viability has been identified as a concern, to prevent the need for federal listing as endangered or threatened under the Endangered Species Act (Consult the Forest-wide Standards and Guidelines for Threatened, Endangered, and Sensitive Species.)
 3. Manage for the abundance and distribution of habitats to provide for the maintenance of healthy and well-distributed viable populations of existing native and desired non-native wildlife, fish, and plant species well-distributed.
 4. Complete establishment reports for recommended Research Natural Areas.
 5. Through watershed or landscape analysis provide for representation of all forested plant associations, with special consideration for naturally rare or underrepresented types such as all Sitka Spruce series plant communities and highly productive plant communities in the Western Hemlock series (especially devil's club or shield fern dominated communities). (Consult the Ecological Definitions for Old-growth Forest Types in Southeast Alaska, R10-TP-28, Plant Association Guides for the Ketchikan and Chatham Areas, or Plant Community Ecology and Classification of the Yakutat Foreland, Alaska R10-TP-56).
 6. In allocations allowing timber harvest, attempt to design harvest activity that minimizes fragmentation of remaining old growth stands compatible with other resource objectives and consistent with the theme of the Land Use Designation.
 7. Attempt to provide linkages of at least 600 foot wide corridors to facilitate wildlife movement and dispersal between old-growth forest blocks. The purpose is to provide interior forest habitat within a closed canopy forest at least 300 feet from the forest edge to avoid the microclimatic effects associated with the edge. Use natural landscape linkages where present (e.g. beach and estuary fringes, riparian areas).
 8. Consider silvicultural systems that establish and prolong understory forb and shrub production in second-growth timber stands. (Consult the Forest-wide Standards and Guidelines for Wildlife.)
 9. Management activity affecting forest structure should emulate dominant ecological processes to the extent feasible. Wind is a principal disturbance agent and activities that mimic the size, intensity, and frequency of natural disturbance events should better maintain diverse, sustainable and productive forest ecosystems and associated ecological processes.

10. In timber harvest areas, emphasize habitat heterogeneity.
 - * Harvested areas which include small patches of green trees, brushy openings, and reserve trees could retain desired stand characteristics when consistent with safe working practices. Retaining these features during harvest provides for increased structural diversity and habitat heterogeneity of silviculturally managed stands during subsequent forest regrowth.
 - * Design boundaries along harvest units that are resistant to windthrow to minimize vulnerability of remaining forest stands to windthrow.
11. Use road management regulations and techniques to manage human access, when necessary, to protect fish, wildlife and plant habitats and/or populations. (Consult to Forest-wide Standards and Guidelines for Wildlife and Transportation, and specific direction in each management prescription.)
12. Seek to maintain or restore the natural range and frequency of aquatic habitat conditions across the Tongass National Forest to sustain the diversity and production of fish and other freshwater organisms (Refer to Riparian Forestwide Standards and Guidelines).
13. Revegetation of disturbed sites will use native plants to the extent feasible. Seeds and plants used in erosion control, fire rehabilitation, riparian restoration, and other revegetation projects shall originate from genetically local sources of native plants.
14. Assure a basic understanding of watershed function and channel processes in all watersheds where significant disturbances are planned (consult Forest-wide Standards and Guidelines for Riparian).

FACILITIES

Forest-wide Standards & Guidelines

The recreation and administrative facilities needed to support the management, protection, and utilization of the National Forests including buildings, utility systems, dams, and other constructed features.

Facilities Operations: FAC1

I. *Administration and Maintenance*

- A. Assess and document the ability of Forest Service facilities to support planned activities.
- B. Assess the historic and cultural values of these facilities.
- C. Provide maintenance and safety inspections on major structures on the Forest in compliance with FSM requirements.
- D. Maintain current operation and maintenance plans for Forest Service-owned recreation facilities (FSM 2330).

Facilities Improvement Preparation: FAC21

I. *Plan Development*

- A. Complete site development plans for all facility needs identified in the Forest Plan implementation schedule or the Forest Facility Master Plan (FSM 7311).
- B. Maintain a description of the desired future condition for facilities which reflects needs, future development opportunities, and long-term management in the Forest Facility Master Plan. Document the extent and management of these facilities including:
 1. Number of buildings by type and age.
 2. Number of dams by classification.
 3. Developed recreation sites, such as National Forest campgrounds, picnic areas, and trailheads with recreation facilities.
 4. Number and types of permitted facilities, including dams, ski areas, fences, buildings, etc.
 5. Number (and/or miles) of systems including sewage, water, electrical, and communication networks needed within recreation, permitted, and administrative sites.

Facility Construction: FAC22

I. *Construction Requirements*

- A. All remodeling, new construction, or building leasing should be constructed in accordance with an approved site development plan in order to provide safe, functional, aesthetically pleasing, energy efficient, and cost-effective facilities.
 1. Ensure consistency with Land Use Designation direction.
- B. Access for persons with disabilities is required for new facilities.
- C. Consult FSH 7309.11 for gender-related design standards.

Facility Maintenance: FAC23

I. *Maintenance*

- A. Maintain facilities to meet codes applicable at the time of construction, unless otherwise required by law.
- B. Perform accessibility surveys on all existing facilities. Implement improvements to provide barrier-free, accessible facilities appropriate to the site development and ROS level, as funding and opportunity allow. (See also Recreation and Tourism Forest-wide Standards & Guidelines).

FIRE

Forest-wide Standards & Guidelines

Fire Suppression: FIRE12

I. Protection Options

A. Due to weather conditions, fire suppression is not a common need on the Tongass National Forest. Under normal conditions, the period of time for fire starts and spread is short. All suppression actions will provide for the safety of fire fighters and be applied at a minimum suppression cost, commensurate with the values at risk. Fire suppression shall fall into one of four optional categories: "Critical" (control strategy), "Full" (control strategy), "Modified" (contain strategy), or "Limited" (confine strategy). These options and strategies are further defined and discussed in the interagency Southeast Alaska/Prince William Sound Fire Management Plan. Complete an Escaped Fire Situation Analysis for all suppression actions that fail to confine, contain, or control the fire's spread following the first initial attack shift. (Consult FSM 5132)

1. Critical Protection Option (control): This option is specifically created to differentiate the protection of human life and inhabited property and improvements from natural resource protection. The designation of a site or area with this option is the discretion of the land manager responsible for the fire protection. Unquestioned priority over all other fires will automatically be given to control fires on sites or areas identified in this option.
2. Full Protection Option (control): Areas assigned this designation will receive aggressive initial attack and aggressive suppression actions until the fire is declared out. This option was designed for the protection of high resource values, cultural sites, historical sites, and those resources which require wildland fire protection, but do not involve protection of human life and habitation.
3. Modified Protection Option (contain): This option is to provide managers with an alternative for those lands that require a relatively high level of protection during critical burning periods. Its intent is to reduce suppression costs and increase resource benefits where possible during the entire fire season. Some portions of the fire may require aggressive action and others may only require a containment action.
4. Limited Protection Option (confine): This category recognizes areas where a natural fire program is desirable or the values at risk do not warrant the expenditures of suppression funds beyond initial attack. No suppression actions will be taken unless necessary to confine the fire within the limited areas.

Fuels Improvements: FIRE2

I. Prescribed Fire

A. The use of Prescribed Fire as a tool for resource management is often undependable due to shortness of burning opportunities and weather limitations during the burning season. Use Prescribed Fire, as appropriate, for silvicultural site preparation, wildlife habitat improvement, or slash hazard treatment.

1. All prescribed fires must have an approved project plan signed by the appropriate line officer with a designated burn boss, contingency options, and a process for monitoring and evaluating results. All prescribed fires will have a qualified organizational structure, including personnel, to suit the complexity of burn. (Consult FSM 5140)

2. Silvicultural Site Preparation. The District Ranger will assure appropriate interdisciplinary specialist participation during planning, executing, monitoring, and evaluation phases of prescribed fire use. Consult FSM 5140, FSH 5709, FSM 6740.
3. Wildlife Habitat Improvement. The District Ranger will assure appropriate interdisciplinary specialist participation during planning, executing, monitoring, and evaluation phases of prescribed fire use. Consult FSM 5140, FSH 5709, FSM 6740.
4. Slash Hazard Treatment: The District Ranger will assure appropriate interdisciplinary specialist participation during planning, executing, monitoring, and evaluation phases of prescribed fire use. Consult FSM 5140, FSH 5709, FSM 6740.

FISH

Forest-wide Standards & Guidelines

Fish Habitat Inventory and Monitoring: FISH111

I. Fish Habitat Inventory

- A. Maintain the channel type and stream class (see Glossary) based inventory of all Forest streams.
 - 1. Maintain and update the stream inventory during site-specific project planning and analysis.
 - a. Consult publication R10-TP-26, *A Channel Type Users Guide for the Tongass National Forest, Southeast Alaska* (as revised), for descriptions of the channel types.
 - b. Consult the R10 Stream Survey Protocol for descriptions of standardized stream survey methodologies (draft).
- B. Maintain the inventory of Forest streams and watersheds for fish enhancement opportunities.
- C. Maintain estimates of fish production for all class I streams. Apply economic benefits and coefficients.

II. Fish Habitat Monitoring

- A. Conduct a monitoring program in a representative number of watersheds sufficient to determine changes in the range and frequency of fish habitat attributes.
- B. Coordinate design and implementation of monitoring program with the Pacific Northwest Research Station.

Fish Habitat Planning: FISH112

I. Fish habitat and channel processes

- A. Recognize watershed function and channel processes when planning for the protection, restoration or enhancement of fish habitat.
 - 1. Consider the effects of upstream and upslope activities during site-specific planning.
 - 2. Consider the condition of upstream and upslope areas during site-specific planning.
 - 3. Consider topics such as erosion processes, watershed hydrology, vegetation, stream channel morphology, water quality, species and habitats, and human uses, during analyses.

II. Channel classification and process groups

- A. Use channel type inventories to categorize stream reaches into channel process groups. Use channel types and process groups to plan management activities affecting fish and fish habitat along all lakes and streams. Process groups and the channel types included in each process group are shown in Appendix D, and in publication R10-TP-26, *A Channel Type Users Guide for the Tongass National Forest, Southeast Alaska*. These groups may be redefined as more information about channel types becomes available.
 - 1. Map and field-verify streams, lakes and estuaries by channel type and stream class for project planning and implementation.
 - 2. During project planning, refine direction for process groups given in the Forest Plan to meet site-specific objectives of individual stream sections for fish habitat.

III. Fish stream value classification

- A. Determine fish value class of all streams in the affected area prior to or during site-specific project planning.
- B. Use the following classification system across the the Forest.
 1. Class I: Streams and lakes with anadromous or adfluvial fish habitat; or high quality resident fish waters listed in Appendix 68.1, Region 10 Aquatic Habitat Management Handbook (FSH 2609.24), June 1986; or habitat above fish migration barriers known to be reasonable enhancement opportunities for anadromous fish.
 2. Class II: Streams and lakes with resident fish populations and generally steep (6-15 percent) gradient (can also include streams from 0-6 percent gradient) where no anadromous fish occur, and otherwise not meeting Class I criteria. These populations have limited fisheries values and generally occur upstream of migration barriers or have other habitat features that preclude anadromous fish use.
 3. Class III: Perennial and intermittent streams with no fish populations but which have sufficient flow or transport sufficient sediment and debris to have an immediate influence on downstream water quality or fish habitat capability. These streams generally have bankfull widths greater than 5 feet and are highly incised into the surrounding hillslope.
 4. Class IV: Other intermittent, ephemeral, and small perennial channels with insufficient flow or sediment transport capabilities to have an immediate influence on downstream water quality or fish habitat capability. These streams generally are shallowly incised into the surrounding hillslope.
 5. Non-streams: Rills and other watercourses, generally intermittent and less than 1 foot in bankfull width, little or no incisement into the surrounding hillslope, and with little or no evidence of scour.

IV. Objectives/guidelines for management affecting fish habitat

- A. Maintain and restore the natural range and frequency of aquatic habitat conditions across the Tongass National Forest to sustain the diversity and production of fish and other freshwater organisms.
- B. Use baseline fish habitat objectives as a reference to evaluate the relative health or condition of riparian and aquatic habitat. Use baseline fish habitat objectives, listed below, (AFHA, 1995) to characterize the natural range of habitat conditions by channel types and process groups.
 1. Pool Area. Expressed as a percentage of the total habitat area.
 2. Large Woody Debris. Defined as woody material greater than 10 cm in diameter and 1 m long, that protrude into the active stream channel area. Expressed as the frequency of large wood pieces per unit area (1,000 sq. meter) of stream.
 3. Width-to-Depth Ratio. Bankfull channel width-to-depth values are measured at bankfull stream stage which is roughly equivalent to the stream level for a 2-year return-interval flood.
- C. Maintain or restore stream banks and stream channel processes.
 1. *Stream Class I and Class II streams that flow directly into Class I streams.* Maintain, restore or improve anadromous, adfluvial, and high value resident fish habitat capability by providing natural or improved cover/pool ratio, pool-riffle sequences, and habitat features, such as stable large woody debris. Design management activities to maintain stream bank, channel and floodplain integrity.
 2. *Other Stream Class II:* Maintain or restore habitat capability for resident fish populations by providing natural or improved cover/pool ratio, pool-riffle sequences, and habitat features, such as stable large woody debris. Design

- management activities to maintain stream bank, channel, and floodplain integrity. Avoid impacts to downstream Class I streams.
3. *Stream Class III*: Design management activities to maintain or restore stream bank, channel, and floodplain integrity. Avoid impacts to downstream Class I and Class II streams.
- D. Maintain or restore natural and beneficial quantities of large woody debris (LWD) over the short and long-term.
1. *Stream Class I and Class II streams that flow directly into Class I streams*. Maintain or restore anadromous, adfluvial, and high value resident fish habitat capability by providing for natural and beneficial volumes of LWD for rearing and spawning, stream energy dissipation, and sources of organic matter to the stream ecosystem. Use biological and physical characteristics of the stream to determine size classes and distribution of LWD.
 2. *Other Stream Class II*: Maintain or restore habitat capability for resident fish populations by providing LWD, and by designing for future sources of LWD at volumes determined by channel type biological and physical characteristics.
 3. *Stream Class III*: Maintain or restore LWD in channels and banks to prevent changes in natural stream bank and stream channel processes.
- E. Maintain or restore water quality to provide for fish production.
1. *Stream Classes I, II, and III*: Prevent adverse effects to rearing and spawning habitat. Maintain or restore anadromous, adfluvial, and high value resident fish habitat capability. Maintain or restore capability for other resident fish populations to the extent feasible. Assure no chronic sediment input following soil-disturbing activities. Prevent adverse impacts to fish habitat downstream by minimizing siltation.
 2. Implement applicable Best Management Practices. (See Appendix C).
- F. Maintain or restore optimum water temperatures for salmonids, considering both winter and summer habitat requirements, climate, and natural watershed characteristics.
1. *Stream Class I and Class II streams that flow directly into Class I streams*. Maintain or restore optimum salmonid summer stream temperatures at between 50 and 68°F or at natural levels.
 2. *Other Stream Class II*: Maintain water temperatures below 68°F, or at natural levels, to maintain or restore habitat capability for resident fish populations, to the extent feasible. Manage watersheds and riparian streambanks to maintain water temperature standards and guidelines for downstream Class I streams.
 3. *Stream Class III*: Manage watersheds and riparian streambanks to maintain water temperature standards and guidelines for downstream Class I and II streams.
- G. Maintain fish passage through stream crossing structures.
1. *Stream Class I and Class II streams that flow directly into Class I streams*. Maintain, restore or improve the opportunities for adult and juvenile anadromous and adfluvial fish migration. (Consult the Aquatic Habitat Management Handbook, FSH 2609.24.)
 - a. Consider juvenile coho as the design species for upstream fish migration.
 - b. When a culvert is selected for stream crossing (rather than a bridge or open-bottom arch) consider the following:
 - 1) For class I streams culverts shall be designed, installed, and maintained to allow upstream passage of juvenile coho. Passage may be delayed for up to 4 days due to high water velocity during the mean annual flood.
 - 2) Culverts shall be designed, installed, and maintained to prevent perching or the creation of water falls at the outlet of the pipe.

2. *Other Stream Class II*: Maintain, restore or improve the opportunities for natural migration for resident fish. Consult the Aquatic Habitat Management Handbook, FSH 2609.24. Consult with the Alaska Department of Fish and Game (ADF&G) whenever fish passage may be restricted.
3. *Stream Class III*: No fish habitat is found in this stream class.

III. Management Indicator Species

- A. Use Management Indicator Species (MIS) to evaluate management activities' effects on fish.
 1. When planning projects, use the following direction for the analysis of impacts on MIS:
 - * Federally-listed threatened and endangered species must be selected if present
 - * Second priority shall be for MIS recommended for the Region. (Consult the USDA Forest Service publication *Wildlife and Fisheries Habitat Management Notes -- Management Indicator Species for the National Forest Lands in Alaska*, publication R10-TP-2.)
 - * Third priority will be to use the following guidelines for the selection of MIS when the first and second priority do not meet the needs for a particular project area:
 - a) State-listed threatened or endangered.
 - b) Species which have the potential to be seriously and adversely affected by the proposed project and are not adequately represented by the above MIS.
 - c) Species for which the Forest comprises a majority total statewide, Regional or national habitat and which are not adequately represented by the above MIS.
 - d) Species which represent or reflect environmental suitability for other species and are not adequately represented by the above MIS.
 - e) Species having significant economic value. Normally these species are those commonly fished for sport, subsistence, or commercial use.

IV. Management Activities

- A. Maintain a fish program schedule which includes anticipated inventory needs, monitoring requirements, and proposed habitat improvement and maintenance projects.

V. Coordination

- A. Coordinate activities that affect fish resources with other Forest disciplines through the interdisciplinary team process, and with state, other Federal, and local agencies and groups.
 1. Develop and maintain Memoranda of Understanding/Agreements with appropriate state, Federal, and local agencies and aquaculture associations.
 2. Coordinate with the Alaska Working Group on Cooperative Forestry/Fisheries Research, state and Federal agencies, and the Forestry Science Laboratory, in maintaining a continuous program for research, monitoring, and assessment of impacts of land-use activities on fish habitat.
- B. Consider the influence of proposed management activities on fishing use patterns.
- C. Consider effects of off-highway vehicle (OHV) travel and road closures on fish habitat and populations.

VI. Projects

- A. Use the following priority for fish habitat project work: mitigation for unplanned impacts, rehabilitation, enhancement. For both mitigation and rehabilitation, consider alternatives for cost efficiency of performing off-site enhancement (enhancement of a different area than where the impact actually occurs).
 - 1. Location of off-site enhancement shall be governed by the following priorities:
 - * First priority: same stream reach (same species)
 - * Second priority: same stream (same species)
 - * Third priority: same watershed (same species)
 - * Fourth priority: same anadromous fish harvest area (same species)
 - * Fifth priority: differing species, using above priority order
- B. Enhance fish habitat to meet the objectives identified in this plan. Opportunities may include, but are not limited to: instream enhancement, lake fertilization, cooperative bio-enhancement (e.g., stocking), incubation boxes, and fishway construction.
 - 1. Use the Cooperative Fisheries Planning process (Consult ANILCA Section 507 and Appendix H) and/or other cooperative agreements for developing priorities for the enhancement of fish resources.
 - 2. Determine habitat capability on streams and lakes identified for enhancement in the Cooperative Fisheries Planning process prior to construction of fish projects.
 - 3. Update the fish habitat enhancement list (Cooperative Fisheries Planning process) annually.
- C. Recognize bio-enhancement (e.g., stocking of juveniles, use of egg incubation boxes, transferring of adult fish to seed stream systems) as part of the fish improvement project costs when appropriate. Cooperate/coordinate with fish agencies and aquaculture associations to facilitate bio-enhancement.

Fish Habitat Improvement: FISH22

I. Planning

- A. Improve fish habitat to work toward the habitat and population objectives of the Forest Plan.
- B. Construct projects using the most cost-efficient methods, while achieving desired results consistent with the Land Use Designation.
- C. During project planning consider the need to monitor the accomplishment of project objectives. Need shall be governed by the type of project, with high interest/high investment projects being monitored more intensively.
 - 1. Where needed, develop cooperative agreements with fish/aquaculture agencies and other groups to assess the effectiveness of Forest Service habitat improvement.

II. Construction Coordination

- A. Coordinate all fish habitat improvement using an interdisciplinary process.
- B. Coordinate habitat improvement projects with the Alaska Department of Fish and Game and other appropriate agencies and groups.

III. Monitoring

- A. Conduct monitoring of fish improvement projects to insure their continued function at the design level of operation.
- B. Monitor fish production on a representative sample of improvement projects to evaluate effectiveness of the improvement program and conceptual designs of individual projects.

Fish Habitat Maintenance: FISH23

I. Maintenance

- A. Provide for the maintenance of fish habitat enhancements.
 - 1. Fund maintenance of existing projects prior to the construction of new ones.
 - 2. Include funding for maintenance in the planning and budgeting for all projects.
 - 3. Maintain improvements to assure that investment objectives are met.
 - 4. If maintenance and operation of an improvement are evaluated, and the improvement becomes inefficient to maintain; redesign or stop maintenance of that improvement.
 - 5. If an improvement becomes inoperable, consider its removal or reconstruction.
- B. Develop a written maintenance responsibilities agreement with project cooperators prior to project construction.

FOREST HEALTH

Forest-wide Standards & Guidelines

Forest Health Management: HEALTH1

I. Forest Health Management

- A. Achieve desired future condition of forest health by manipulating insect and disease populations to beneficial levels. Desirable forest health conditions are expected to vary according to different resource goals.
 - 1. Create ecological conditions which improve the health of vegetation by incorporating forest health principles into forest planning, decision-making, and implementation of project activities. The Forest Health Management Group (S&PF) will be responsible for providing the data necessary for project planning to maintain or improve forest health.
 - 2. Consider Forest Health Management information dealing with insects and diseases and recommendations on management alternatives. These recommendations will include analyses of the ecological effects of insects and diseases and management alternatives, including no action, chemical, cultural, mechanical, and biological methods.
 - 3. For direction on the use of pesticides in forest management, consult the "Pesticide Use and Timber Management" guidelines in the Timber Forest-wide Standards and Guidelines.
- B. Evaluate insect and disease impact(s) to resources. The Forest Health Management Group will:
 - 1. Conduct on-site evaluations to assess past, current and future insect and disease impacts and their effect upon desired forest health.
 - 2. Use data from these evaluations to develop project plans.
- C. The Forest Health Management Group will provide training, technology transfer, and technical assistance to area and district personnel to assist in the management of forest insects and diseases.

Forest Insect and Disease Survey & Inventory: HEALTH2

I. Insect and Disease Detection Survey

- A. Forest Health Management will conduct an annual insect and disease detection aerial survey in cooperation with the areas and districts.
 - 1. Resource managers will establish survey priorities based on planning needs and current management concerns.
 - 2. Forest Health Management will conduct aerial surveys of a variety of forest cover types and Land Use Designations, concentrating on those areas identified as having the highest management priority.

HERITAGE RESOURCES

Forest-wide Standards & Guidelines

Heritage Resource Activities: HER

I. Management

- A. Maintain a heritage resource management program to identify, evaluate, preserve, and protect heritage resources on a Forest-wide and project specific-level in compliance with the National Historic Preservation Act, the National Environmental Policy Act (NEPA), the American Indian Religious Freedom Act (AIRFA), the Archaeological Resources Protection Act (ARPA), the Native American Graves Protection and Repatriation Act (NAGPRA), their amendments and implementing regulations. Consult Acts, 36 CFR 800, FSM 2300.
- B. Coordinate management of heritage resources with the State Historic Preservation Officer (SHPO) and the Advisory Council on Historic Preservation (ACHP). Consult 36 CFR 800 and FSM 2300 and the Programmatic Agreement #95MOU-10-029 between the USDA Forest Service, Region 10 and the Advisory Council on Historic Preservation (ACHP) and the Alaska State Historic Preservation Officer (SHPO).
- C. Identify and develop appropriate interpretive messages for heritage resource sites and activities that relate the historical value and contributions of natural and heritage resource management to the Tongass National Forest. Work closely with all interpretive services programs to assure accurate and effective interpretation of heritage resources.
- D. Coordinate the management, access, and use of forest products to perpetuate Alaska Native culture and art forms.
- E. Develop a heritage resource management assessment that provides a framework for management decisions. Its objectives are to display the schedule of management activities, to summarize current status, and to identify priorities for future heritage resources inventory, evaluation, and protection.
 1. Update the heritage resource assessment annually, for budget implementation and to fulfill requirements of the annual report to SHPO as stipulated in the Programmatic Agreement #95MOU-10-029.
 2. The assessment/annual report should include:
 - * An overview of new data and data management.
 - * Identification of projects reviewed under 36 CFR 800 or the Programmatic Agreement #95MOU-10-029 and areas requiring intensive site inventory, including non-project areas of the Forest.
 - * Identification, classification and evaluation of heritage resources located.
 - * Reevaluation and update of the heritage resource sensitivity zone system based on new data and/or understandings of each area's heritage resources and their locations.
 - * Identification of measures and priorities for the protection of heritage resources from vandalism, theft, and natural deterioration.
 - * Identification of prioritized needs for the stabilization, restoration, and repair of damaged sites.
 - * Identification of the need for maintenance of sites on or eligible for inclusion in the National Register of Historic Places.
 - * Identification of opportunities for interpretation of heritage resources for public education and recreation values.

- * Identification of the interaction of heritage resources and other multiple uses, including consideration of management activities, and their impacts on heritage resource management.
- * Identification of the coordination efforts with appropriate state heritage resource plans and planning activities of the State Historic Preservation Officer, State Archaeologist and other state and Federal agencies.

II. *Project Clearance/Inventory*

- A. *Project Clearance:* Any project, activity, or program that can result in changes in the character or use of historic properties and is under the direct or indirect jurisdiction of the Forest, licensed or assisted by the Forest, including new or continuing projects, activities, or programs and any of their elements not previously considered under Sections 106 and 110 of the National Historic Preservation Act of 1966, as amended, shall be considered an undertaking and will require evaluation through inventory and survey.
 - 1. Accomplish Heritage Resources clearance for NEPA prior to the release of the draft Environmental Impact Statement or the Environmental Assessment for public review, or prior to signing a decision memo.

III. *Project Implementation*

- A. Inventory and evaluation may be accomplished at the operator's discretion and cost provided that the inventory and evaluation are accomplished under the supervision of a qualified Heritage Resource Specialist authorized by a special use authorization.
- B. Include as part of the Clearance Report specific protective and/or mitigative measures to be taken by the operator who is responsible for the cost of any such protective or mitigative measures.
- C. Mark heritage resource sites within or adjacent to the project area prior to project implementation.
- D. Include in each contract, permit, or lease a statement of the operating conditions required to protect heritage resources in the project area. Also include the pertinent clause notifying the operator of his or her responsibility to protect marked sites when working in the project area and the operators liability for damage.
- E. Provide training in the recognition, site inspection, and protection of heritage resources for all persons responsible for on-the-ground administration of contracts, permits or leases.
- F. If a site is discovered during project implementation, work shall be suspended by the project administrator to avoid potential site damage. The Forest Supervisor shall notify the State Historic Preservation Office (SHPO) and authorize resumption of work only after the consultation process has been completed. The project administrator shall keep the contractor, permittee, or lessee informed of anticipated delays in work resumption.

IV. *Mitigation*

- A. In cases where in-place preservation of heritage values is the objective, the Forest Supervisor shall consider management options such as project design, location, or cancellations in meeting the objective. Consult 36 CFR 800 for procedures to be followed in reaching a management decision.
- B. The preferred management of sites listed in, nominated to, or eligible for the National Register of Historic Places is avoidance and protection.
 - 1. Sites listed in, nominated to, or eligible for the National Register of Historic Places shall be managed to achieve a "No Adverse Effect" finding, in consultation with the State Historic Preservation Officer and the Advisory Council on Historic Preservation. Consult 36 CFR 800.

2. The recovery (collection) of heritage resources can occur during the inventory, evaluation, or mitigation (data recovery) phases. Standard requirements include documentation of the resource, labeling of the artifacts, and curation of the recovered materials and resultant records.
3. Collection of artifacts, except under emergency circumstances, must be accomplished or directly supervised by a professional Heritage Resource Specialist. With the approval of the Forest Supervisor, a qualified Heritage Resource Specialist may recover artifacts for purposes of evaluation.
4. Requirements for heritage resource collection are:
 - * *Emergency collection*: Artifacts collected in emergency situations shall be turned over to the Area Heritage Resource Specialist for appropriate curation.
 - * Special Agents and other law enforcement officers conducting criminal investigations may collect artifacts as evidence. Any material collected must be cataloged and stored in a secure area.
 - * Artifact samples may be collected from heritage resource sites, when they can be systematically recovered and properly recorded for further evaluation (caution must be exercised to assure that the collection of artifact samples is adequate for the purpose intended without causing unacceptable impacts to the resource).
 - * Data recovery (including collection of artifacts and photographic/archival recordation) must be conducted in accord with a Forest Service/State Historic Preservation Office approved Data Recovery Plan, which shall conform to the published guidelines in the Advisory Council on Historic Preservation, *Handbook for the Treatment of Archaeological Properties*.
5. Disinterment of human remains and associated grave goods, sacred objects and objects of cultural patrimony should occur only when consultation has been completed per NAGPRA with the direct lineal descendants or the representative tribe. A signed MOU shall be in place prior to any disinterment activities.

V. Enhancement

- A. Identify opportunities and priorities for interpretation of heritage resources for public education and recreation.
 1. Manage significant and suitable heritage resource sites to realize their recreational and educational values to the public. Enhancement programs should include in-service funding as well as opportunity for establishing partnerships with the private sector. The measure of suitability should be based upon accessibility, feasibility for protection, condition of the property, compatibility with other management activities, and value to the public.
 2. Enhance suitable heritage values through interpretation, restoration, and the publication of reports, brochures or films, videos, and slide programs. Interpretive services and facilities should be compatible with the nature, quality, and integrity of the resource selected for enhancement.
 3. Cooperate with museums, universities, and other recognized institutions, agencies, and knowledgeable persons in planning and constructing heritage resource exhibits and providing opportunities for scholarly/scientific use.
 4. Manage heritage resources to ensure that properties and their records are protected to prevent degradation or unauthorized use under authority of the Archaeological Resources Protection Act of 1979 and the regulations in 36 CFR 296.

VI. Site Inspection

- A. Assess condition, and document restoration or stabilization needs of cultural sites. Use this information for reporting the success of mitigation measures and other actions taken to ensure site preservation.
 - 1. Frequency of inspection should seek to include one documented visit per selected site per year as available resources allow. If site damage is observed, additional inspections may become necessary. If an area is damaged through suspected human disturbance, inspect other sites in that vicinity. (Consult the Area Heritage Resource Specialist and/or Special Agent.)
 - 2. Coordinate the assessments with District Rangers, the Area Heritage Resource Specialist and the Special Agent.
- B. Assessment procedures should include observations documenting the current site condition. Document assessments through a signed, written report that verifies which site was inspected and the observed condition.
- C. *Damage Assessment Report*. If site damage is observed and it has not been previously recorded, a site damage assessment report will be prepared by the Area Heritage Resource Specialist. The purpose of the damage assessment report is: to identify the damage, to make recommendations to stabilize the site from further deterioration, and to evaluate the actions needed to prevent further damage.
- D. Remain alert to cultural damage potentially attributable to criminal acts and safeguard investigation by avoiding further disturbance of the area.
- E. Prioritize heritage sites to be assessed on a yearly basis as coordinated by the District Ranger, Area Heritage Resource Specialist and Special Agent.
- F. Include resource inspection in the measures for the protection of heritage resources from vandalism, natural destruction, or project activity. Evaluate and recommend measures such as stabilization, data recovery, or no action, for resources that have sustained damage from natural forces. Vandalism, collecting, illicit excavation, or project damage shall be evaluated for protective measures, such as signing, administrative closure, remote sensing, increased inspection, investigation, stabilization, data recovery or other measures under the authority of the American Antiquities Act of 1906, the Archaeological Resources Protection Act of 1979 and regulations in 36 CFR 261, 36 CFR 296, and 36 CFR 800.

KARST AND CAVE RESOURCES

Forest-wide Standards & Guidelines

Karst Resources: KARST

I.Objectives

- A. Maintain, to the extent feasible, the natural karst processes and the productivity of the karst landscape while providing for other land uses where appropriate. This strategy is designed to assess a karst resource's vulnerability or sensitivity to a proposed land use and recognize the differences in intensity of karst development across the karst landscape.

The key elements of the karst strategy focus on the openness of karst and its ability to transport water, nutrients, soil and debris, and pollutants into underlying hydrologic systems. Strive to maintain the capability of the karst landscape to regenerate a forest after harvest, to maintain the quality of the waters issuing from the karst hydrologic systems, and to protect the many resources values within underlying significant cave systems as per the requirements of the Federal Cave Protection Act.

II.Management

- A. Maintain a karst resource management program that will identify, evaluate, and provide for karst resources. Evaluate karst resources as to their vulnerability to land uses affecting karst systems, as described in the Karst and Cave Resource Significance Assessment, Ketchikan Area, Tongass National Forest, Alaska (Aley et al., 1993), the information provided herein, and within Appendix I.
- B. Seek participation from interested individuals and organizations, such as caving groups, scientists, recreationists, and development interests in managing the karst resources.
- C. Integrate and coordinate karst management with the management of other resources. Management strategies developed will consider the function and biological significance of the karst landscape. Karst management strategies will be based on system recognition and protection, not solely feature preservation.
- D. Public education and interpretative programs should be developed to insure an increased understanding of the components and function of the karst landscape. Use primary research results to foster and promote conservation and further public education of karst resources.
- E. Work with universities and other appropriate research facilities to foster partnerships to study and characterize the function and biological significance of karst landscapes. In order to maintain existing aesthetic and future scientific values, use non-consumptive research techniques as much as possible. As emphasis items, pursue, within available budgets, programs that:
 - 1. Characterize the paleoecology and prehistory of southeastern Alaska by studying the sediments, mineral deposits, and paleontological and cultural resources within the karst landscape.
 - 2. Describe the biospeleology of the karst systems.
 - 3. Characterize the contribution of the karst groundwater systems to productivity of aquatic communities.
 - 4. Study the relationship of peatlands to karst development.
 - 5. Study the effects of timber harvest and road construction on karst landscapes.
 - 6. Analyze the geochemistry of the karst host rocks to help understand karst development and identify possible areas suitable for mineral development.

III. Karst Landscape Assessment

- A. Karst lands impose land management challenges not encountered in non-karst areas because this three dimensional landform functions differently than do other landforms. Evaluate karst resources as to their vulnerability to land uses affecting karst systems. Classify karst lands as being of low, moderate, and high vulnerability. This is a four-step process:
1. **Identify Potential Karst Lands**-Identify those lands underlain by carbonate rocks. As a practical matter, all lands underlain by carbonate rocks within the Forest should be considered a karst landscape.
 2. **Inventory Karst Landscapes and Cave Resources**-Prior to the initiation of any project planning effort, determine the project's proximity to or position on a karst landscape. If it is determined that karst may be present in the area, perform an inventory of the area. Record the presence or absence of karst. If karst is present, document the degree to which karst has developed including the degree of epikarst development, the presence of caves, the presence of insurgences and resurgences, sinkholes, collapse channels, and other karst features.
 3. **Delineate Karst Hydrologic System and Catchment Area** - Define, to the extent feasible, the karst hydrologic system and the recharge area watershed or catchment area for each karst system. The character of the catchment area, i.e., the area, slope gradient, vegetation, water quality, soils, etc. controls the nature of the receiving karst system and defines the volume of runoff available for infiltration into the system. Recharge area delineation should be delineated to assess and characterize possible impacts.
 4. **Assess Vulnerability of Karst Terrain to Management Activity** - With the completion of the first 3 steps of the Karst Management Strategy, the final step is to delineate the land under investigation into various vulnerability categories. The recommended vulnerability mapping applies only to carbonate rock areas and areas that contribute waters to such areas. An area's vulnerability rating must be sensitive to potential surface management practices based on the extent to which epikarst has developed and the openness of the karst system. The vulnerability categories and criteria are as follows:
 - a) **Low Vulnerability Karst lands** - These are areas of low or negligible vulnerability from a karst management perspective. No special provision for the protection of karst values is considered necessary. It is possible that within and adjacent to areas found to be of low vulnerability, will be found karst areas with high vulnerability. Along such boundaries or margins, apply guidelines described in Appendix I.
 - b) **Moderate Vulnerability Karst lands** - Provide for other land uses taking into account karst management objectives. Timber harvest and related activities could be conducted in such areas under more restrictive guidelines than normally employed on lands underlain by non-carbonate bedrock. Implications of land use will be determined by the nature of the karst values present. It is probable that within and adjacent to areas found to be of moderate vulnerability, will be karst areas with high vulnerability. Along such boundaries or margins, apply guidelines described in Appendix I.
 - c) **High Vulnerability Karst lands** - These areas are of very high significance and sensitivity from a karst conservation perspective. These areas will be managed to insure conservation of karst values. Karst lands found to be of high vulnerability will be identified and removed from the commercial forest lands suitable land base.

IV. Mineral Development

The chemically pure carbonates of southeastern Alaska have long been considered for their commodity values. Values are determined on chemical purity as well as on brightness. The more pure the carbonate bedrock, the more intense karst development will be. Analyze the impacts of any proposed mineral development within the karst landscape through the environmental analysis which is triggered once a Plan of Operations is received. However, on karst land found to be of high vulnerability, mineral development is generally not appropriate.

Cave Resources: CAVE

I. Management

- A. Manage lands in a manner which, to the extent feasible, protects and maintains significant caves and cave resources.
- B. Locate, map, and describe caves, and evaluate and document the resource values discovered. Although the word "inventory" is not used in the Federal Cave Resources Protection Act (FCRPA), it is clear that the significant cave designation process is an inventory process for identifying caves that will require some form of management. Carry out data storage and collection in a manner which is consistent, at a minimum, with the processes outlined in 36 CFR 290 for initial and subsequent nomination, evaluation, and designation of significant caves.
- C. Develop a comprehensive Cave Resource Management Strategy on known cave resources. Strategies for cave resource management are suggested in Appendix I and within these standards and guidelines. As a minimum the strategy should include components which outline processes for cave inventory, record keeping, cave naming, handling of confidential cave information, partnership opportunities, recreational use monitoring, cave access and entry permits, and cave resource evaluations.
- D. Develop public education and interpretative programs to foster an increased appreciation of the function and biological significance of the cave resources, caving ethics and safety, and safe and responsible uses of these resources for research and recreation purposes.
- E. Classify caves based on management objectives consistent with identified cave resource values. Caves should be placed into one of the following classifications:
 1. **Class 1. Sensitive Caves** Caves considered unsuitable for exploration by the general public either because of their pristine condition, unique resources, or extreme safety hazards. These caves will be closed by the Forest Supervisor and entry allowed by permit only.
 2. **Class 2. Directed Access Caves** Caves with directed access and developed for public use. These caves are shown on maps or have signs directing visitor access, public visitation is encouraged.
 3. **Class 3. Undeveloped Caves** Caves that are undeveloped but are suitable for exploration by persons who are properly prepared. Location of these resources will not be advertised nor shown on maps.
- F. Specific information concerning significant caves on the Forest will not be made available to the public (FCRPA). This information is also not available under Freedom of Information Act requests. Treat this information as confidential and secure it in such a manner as to prevent access by non-authorized individuals. The cave coordinator will maintain the cave files and ensure that access is provided on a need-to-know basis only. Information concerning significant caves may be made available only if the deciding officer determines that disclosure of such information would further the purposes of the Act and would not create a substantial risk of harm, theft, or destruction of a significant cave.
- G. Search and rescue in caves is the primary responsibility of the Alaska State Troopers. Supply appropriate support and equipment where needed and available.

LANDS

Forest-wide Standards & Guidelines

Lands Preparation: LAND11

I. Land Status

- A. Perform a land ownership review during early project planning stages, prior to management activities, to ensure protection of state, private, and other Federal agency rights and interests.
 - 1. Consult sources, such as BLM Master Title Plats (MTP's), in addition to the land status atlas, to identify land encumbrances which do not appear in the land status atlas.

II. Coordinating with Others

- A. Coordinate activities, including environmental analysis on National Forest System land, with adjacent state and private landowners. Solicit and consider their input when analyzing proposals which might affect them.
- B. Coordinate, in accordance with the Memorandum of Understanding (MOU), all projects that affect any land or water use or natural resource of the coastal zone, with the State of Alaska, Division of Governmental Coordination, to ensure activities are consistent, to the maximum extent practicable, with the enforceable policies of the Alaska Coastal Management Program.
- C. Cooperate with the State of Alaska and local communities in their land and resource planning efforts.
- D. Coordinate activities on encumbered lands with interest holders, as appropriate.

Special Use Administration (non-Recreation): LAND122

I. Special Use Authorization

- A. Manage special use authorizations to best serve the public interest, in accordance with the following standards and guidelines. (Consult 36 CFR 251.)
 - 1. Do not authorize private uses of National Forest System lands when such uses can be reasonably accommodated on other lands.
 - 2. Review new special use requests for their compatibility with Land Use Designations, based on a consideration of environmental values, economic feasibility, and a determination of social and economic benefits. (Consult FSM 2700.)
 - 3. In addition to the above criteria, special use applications may be denied if the authorizing officer determines that:
 - * The proposed use would not be in the public interest
 - * The applicant is not qualified
 - * The proposed use would otherwise be inconsistent with applicable Federal or state law; or
 - * The applicant does not or cannot demonstrate technical or financial capability. (Consult 36 CFR 251.54.)
 - 4. Review and adjust special use fees on a planned basis to comply with U.S. Office of Management and Budget (OMB) directives and Forest Service policy. (Consult OMB Circular No. A-25, and FSM 2700.)
 - 5. Upon renewal or transfer of a permit, terminate or bring into conformance existing uses which are not compatible with the Forest Plan.

6. On lands encumbered by state selections, obtain concurrence from the Alaska Department of Natural Resources prior to granting a Special Use Authorization, in accordance with the Alaska National Interest Lands Conservation Act, Section 906 (k) and Forest Service Manual policy. (Consult FSM 5450.)
7. Do not issue Special Use Authorizations on lands selected, or withdrawn for selection by a Native corporation without the consent of that Native corporation, unless waived by the Regional Forester. (Consult FSM 5450.)
8. Do not issue Special Use Authorizations on lands for which there is a Native Allotment application without consent from the applicant and the Bureau of Indian Affairs (or their designees), unless the application has been adjudicated by BLM as being invalid and the case has been closed. Contact the Regional Forester prior to granting a Special Use Authorization within an active claim area, as Regional Forester authorization may also be required. (Consult FSM 5450.)
9. Coordinate all Special-Use Authorization proposals which have a direct effect on the coastal zone, with Alaska Office of Management and Budget, Division of Governmental Coordination, to ensure these activities are consistent, to the maximum extent practicable, with the Alaska Coastal Management Plan. The Coastal Zone excludes all Federal lands.
10. Require that structures be constructed and maintained in a manner to blend with the surrounding environment, and be consistent with management objectives and other allowed activities. To the extent feasible, locate new structures hidden from areas of concentrated visitor use, such as rivers, roads, trails, and public recreation cabins.
11. Manage authorized uses to maintain a neat and sanitary condition of the permit area. The preferred method of litter disposal is to remove all litter from National Forest System lands and dispose of it at appropriate sanitary facilities. If this is not feasible, require the permit holder to burn all burnables on site, at a location designated by the responsible Forest Officer, and remove all materials which cannot be burned (including ash residue) for disposal at an approved disposal site.
12. Locate outdoor toilets away from lakes, rivers, and streams. Follow guidelines in the State Wastewater Disposal Regulations. Outdoor toilet locations will be approved by the Forest Service prior to construction. (Consult 18 AAC 72.)
13. To the extent allowed by law, regulation, and policy, allow permit applicants to conduct environmental analyses and supporting activities (such as cultural resource surveys) and submit them to the responsible official for consideration in Forest Service decisions.
14. Have electronic site proponents submit technical data required in Section 48 of the Special Uses Handbook (FSH 2709.11) for site designation, including demand for the site, consideration of alternate locations, compatibility with other electronic uses, interference with other uses, areas of electronic signal coverage, signal paths, and relationship of the proposed site to other sites.

II. Cabins and Related Structures

- A. Manage cabins and related structures which were existing but unauthorized prior to ANILCA (December 2, 1980), in accordance with direction in the Regional Supplement to the Special Uses Handbook (FSH 2709.11) and the following standards and guidelines. (In Wilderness, consult FSM 2320 and the Wilderness prescriptions).
 1. Allow the continuation of customary and traditional uses of cabins and related structures which were existing but unauthorized on December 2, 1980 in accordance with a nontransferable, renewable, five-year Special Use Permit until the death of the last immediate family member of the original permittee, when such uses are compatible with Land Use Designation direction, and are otherwise in compliance with the Alaska National Interest Lands Conservation Act (ANILCA), Section 1303(b).

2. Prior to issuing a permit, in accordance with ANILCA, Section 1303(b)(3), require the permit applicant to:
 - * reasonably demonstrate by affidavit, bill of sale or other documentation, proof of possessory interest or right of occupancy
 - * submit a sketch or photograph of the cabin and a map showing its location
 - * agree to vacate the cabin and remove all personal property from it within a reasonable time period following nonrenewal or revocation of the permit
 - * acknowledge in the permit application that the applicant has no interest in the real property on which the cabin is located.
 3. When issuing these permits, list all qualifying immediate family members along with the original claimant and require that one person be designated to represent all permit holders. The original claimant is the resident of record, as of December 2, 1980.
- B. Manage cabins and related structures which were authorized on December 2, 1980, in accordance with direction in the Regional Supplement to the Special Uses Handbook (FSH 2709.11) and the following standards and guidelines. (For Wilderness cabins and related structures, consult FSM 2320 and the Wilderness Prescription).
1. Allow the continued use of cabins, homesites, and similar structures which were authorized on December 2, 1980, in accordance with the terms of the original permit. Generally renew these permits (if the terms of the permit in effect on December 2, 1980 allow for renewal), subject to reasonable regulations and provisions of the Alaska National Interest Lands Conservation Act, Section 1303(d), unless continuation of the use would constitute a direct threat or significant impairment to the purposes for which the National Forest or conservation system unit was established. A reasonable fee may be imposed on cabins previously under free use or existing fees may be increased by a reasonable amount, to keep pace with inflation, or for other justifiable purposes.
 2. These permits may be transferred to one other person at the election or death of the permittee of record on December 2, 1980, if the conditions of the original permit allow for such transfer.
 3. Names of immediate family members of the holder may be added as additional permit holders. Immediate family members are defined in the Regional Supplement to the Special Uses Handbook (FSH 2709.11).
- C. Manage new cabins and related structures, in accordance with direction in the Regional Supplement to the Special Uses Handbook (FSH 2709.11) and the following standards and guidelines. (For Wilderness, consult FSM 2320.)
1. The construction of new cabins is prohibited with the following limited exceptions. A nontransferable, five-year special use permit may be issued in some circumstances, following a determination that:
 - * the proposed use, construction, and maintenance of the cabin are compatible with Land Use Designation objectives
 - * use of the cabin is directly related to administration of the area or is necessary for continuation of an ongoing activity, allowed within the area
 - * the permit applicant has no reasonable alternative.
 2. Do not permit construction of new cabins for private recreational or residential uses. Consider permitting new cabins for some commercial uses, when a cabin is necessary to provide a needed public service (generally, public need is identified in a prospectus) or within areas where such commercial use of cabins was an established customary and traditional use prior to December 2, 1980. Consider permitting new cabins for administrative use by other agencies, such as Alaska Department of Fish and Game, when no feasible alternatives exist.

3. All new cabins will be deeded over to, and become the property of, the United States Government, as provided in the Alaska National Interest Lands Conservation Act, Section 1303(b)(4).
4. Prior to issuing a permit, in accordance with ANILCA, Section 1303(b)(3), require the permit applicant to:
 - * submit a sketch or photograph of the proposed cabin and a map showing its location
 - * agree to vacate the cabin and remove all personal property from it, within a reasonable time period following nonrenewal or revocation of the permit
 - * acknowledge in the permit application that the applicant has no interest in the real property on which the cabin will be constructed
 - * quit claim deed the cabin to the United States Government.
- D. Provide for subsistence uses by authorizing temporary facilities, such as tent platforms, rather than new cabins. Follow procedures and design standards for temporary facilities, found in Section 1316 of the Alaska National Interest Lands Conservation Act, the following section on temporary facilities, and the Forest Service Manual. (Consult FSM 2720.)

III. *Temporary Facilities*

- A. A temporary facility is defined as: "Any structure or other human-made improvement which can be readily and completely dismantled and removed from the site when the authorized use terminates." (Consult FSM 2720.)
- B. Permit temporary campsites, tent platforms, shelters, and other temporary equipment, directly and necessarily related to the taking of fish and wildlife, subject to:
 1. Reasonable regulation to ensure compatibility
 2. Conditions of the Alaska National Interest Lands Conservation Act, Section 1316
 3. Forest Service Manual direction
 4. Consistency with management prescriptions direction. (Consult FSM 2720. In Wilderness, consult FSM 2320.)
- C. When issuing new permits for subsistence-related facilities, authorize tent platforms and associated temporary facilities only.
- D. To the extent feasible, locate subsistence camps out of sight of high use areas such as rivers, roads, trails, public recreation cabins, and other user facilities.

IV. *Aquatic Farming Permits*

- A. For the direction on the management of aquatic farm permits, consult the Regional Supplement to the Special Uses Handbook (FSH 2709.11).
- B. "Aquatic farming" should not be confused with "aquaculture". Consult the glossary for a definition of these and related terms. "Aquatic farming" is provided for in Alaska State Law (AS 16.40.100 - 16.40.199, June 9, 1988). It involves growing aquatic plants or shellfish for sale, either in captivity or under positive control. Typically shellfish are pen-reared. Finfish are generally not included and release of the organism does not result in a product becoming available as a common property resource. "Aquaculture" is provided for in ANILCA, Section 1315(b). It involves the maintenance or improvement of fish stocks. It includes facilities such as fish hatcheries and projects such as fish stocking or lake fertilization. It includes finfish and release results in a product becoming available as a common property resource.
- C. Cooperate with state and other Federal agencies to meet industry and public needs for aquatic farming programs and ensure compatibility with other resources and activities.
 1. During evaluation of requests for Forest Service permits, carefully analyze the effects of aquatic farming activities on other resources and other activities, such as recreational uses and access to adjacent uplands. Oppose aquatic farm development in or adjacent to National Forest System Wilderness.

2. Coordinate responses to aquatic farming proposals with the Alaska Department of Natural Resources and Alaska Office of Management and Budget, Division of Governmental Coordination.
3. Initially, issue permits only for low investment, minimum development, temporary support facilities (not to include cabins) which can be readily removed from the site if the project ceases to be viable for the operator. Consider permitting additional support facilities on National Forest System lands, only after a viable business is established and need for the facilities can be demonstrated.

V. Floathouses

- A. Manage residential floathouses in accordance with the following standards and guidelines.
 1. Issue Special Use Authorizations for floathouse shoreties only at locations where the activity is specifically provided for in the Alaska Coastal Zone Management Plan or approved coastal zone area plans.
 2. Cooperate with the State of Alaska and local communities to help develop criteria which address floathouse placement. In developing new state or city plans, encourage locating floathouses near communities or adjacent to private uplands. Avoid locating them:
 - * Adjacent to designated Wilderness or other areas where they would be incompatible with upland management objectives
 - * Where they may adversely affect forest resources
 - * Where they may conflict with higher priority public uses.
 3. As a condition of the Forest Service Special Use Authorization, require applicants to obtain all necessary authorizations from other appropriate agencies, such as Alaska Department of Natural Resources and the U.S. Army Corps of Engineers.

VI. Fish Camps

- A. Manage special use permits for commercial set net fish camps in accordance with direction in the Regional Supplement to the Special Uses Handbook (FSH 2709.11) and the following standards and guidelines.
 1. Where the use of commercial fish camps, including primitive cabins, is a customary and traditional use, allow this use to continue within traditional locations, at approximately traditional densities, as established prior to ANILCA (December 2, 1980), if compatible with land use designations objectives.
 2. New facilities will usually be tent platforms and associated temporary facilities unless a need can be demonstrated for a cabin.
 3. New cabins, if authorized, will not exceed 500 square feet in size. Limit new cabin authorizations to one cabin per set net permit. If needed, authorize additional sites for use with a tent platform.
 4. Assign a permit tenure of five years for cabins and one to five years for tent platforms with the provision that, unless revoked for violation of permit conditions, these permits may be renewed upon expiration.
 5. Assign new fish camp permit holders areas up to 1/4 acre in size, based on need.
 6. Within areas traditionally used for fish camps, allow existing privileges currently under permit to continue. Do not allow fish camp permit holders to engage in outfitter/guide or lodge/resort activities from their fish camps, unless already authorized by permit.
 7. Consider authorizing requests for subsistence uses from fish camps; however, any authorization for subsistence uses from fish camps will be documented in writing to the permit holder, along with conditions, if any, which may be necessary to protect resources and the rights of other users. Do not permit residential uses of fish camps.

8. To obtain a fish camp permit, require applicants to hold a commercial set net permit from the Alaska Department of Fish and Game, valid for the area in which the proposed facility is to be located. Camp occupancy will generally correspond to the dates of the open set net season, with exceptions allowed for camp set up and take down (if necessary) and for subsistence uses, if authorized.
9. Some fish camp permits have traditionally been issued free of charge. In compliance with U.S. Office of Management and Budget (OMB) directives, and Federal Regulations (36 CFR 251 .57), assess appropriate fees in conjunction with all commercial fish camp uses.
10. Natural hydrologic changes may lead to use areas being relocated. This need is recognized and new use areas may be authorized, if necessary, following separate environmental analysis, as rivers change their course or other changes lead to shifts in the location of fish runs. Issue permits for tent platforms in new locations where cabin use is not already established.

VII. Right-of-Way Grants

- A. Grant reasonable access across National Forest System land to allow inholders and other landowners use of their land without unnecessarily reducing Forest Service management options or damaging National Forest lands or resources. (Consult FSM 2730.)
 1. Ensure that all roads constructed through permits or leases are designed according to standards appropriate to the planned uses, considering safety, cost of transportation, and effects upon lands and resources. Ensure these roads are planned and designed to re-establish vegetative cover on the disturbed area within a reasonable period of time (not to exceed 10 years) after the termination of the permit or lease, unless the road is determined as a permanent addition to the National Forest transportation system. (Consult 36 CFR 219.)
- B. Apply the following approval authorities, as applicable, when processing right-of-way grant requests.
 1. Continue to use existing authorities such as the Federal Land Policy and Management Act (FLPMA), the Forest Road and Trail Act (FRTA), and the Highway Act of 1958, except when prohibited by other applicable law.
 2. When proposed rights-of-way cross, or enter upon, a Conservation System Unit (as defined in ANILCA, Section 102(4)), follow procedural requirements found in ANILCA, Section 1104.
 3. When proposed rights-of-way will provide access to state or private inholdings or valid occupancies (such as a mining claim or Special Use Authorization) surrounded by, within, or effectively surrounded by, a Conservation System Unit, use authorities found in ANILCA, Section 1110(b).
 4. When proposed rights-of-way will provide temporary access to non-Federal lands, to or across a Conservation System Unit, for purposes of survey, geophysical, exploratory, or other temporary uses which will not result in permanent resource damage, use authorities found in ANILCA, Section 1111.
 5. When proposed rights-of-way will provide access to other non-Federal inholdings, either within or outside of a Conservation System Unit, use authorities found in ANILCA, Section 1323(a).
- C. Allow the following activities to occur without requiring a Special Use Authorization. (Consult ANILCA, Section 1110(a).)
 1. The use of snowmachines, motorboats, fixed-wing airplanes, and nonmotorized surface transportation methods for traditional activities which are permitted by law and for travel to and from villages and homesites, subject to reasonable regulations to protect resource values. These uses do not require a permit and may be prohibited

only following a notice and hearing in the vicinity of the affected area, and a determination that such uses would be detrimental to resource values.

2. This direction does not authorize the construction or maintenance of improvements or facilities on National Forest System lands, nor does it authorize use of off-highway vehicles, other than snowmachines.
- D. Apply the following standards and guidelines to Transportation and Utility Systems. The primary purpose of these systems is to accommodate public transportation and energy transmission. These Transportation and Utility Systems include significant existing and proposed transportation and utility sites and corridors, and other rights-of-way necessary to accommodate use from a facility or other compatible right-of-way, when such rights-of-way cross National Forest System lands.

Examples of facilities located within these corridors include, but are not limited to, state and Federal Highways, railroads, powerlines 66kV and above, and pipelines 10 inches or greater in diameter, constructed by holders of a special use authorization. Water pipelines greater than 10 inches are included only if they are a public utility (i.e., if they service a community water supply). A portion of existing and proposed Transportation and Utility Systems have been allocated to the Transportation and Utility System (TUS) Land Use Designation (LUD) (see the TUS LUD in Chapter 3). This LUD gives additional emphasis to major transportation and utility systems.

These systems will generally include sites where associated facilities, such as dams, reservoirs, or generators, are located. Sites and corridors include the land directly under, and immediately adjacent to the facilities. Sites have significant improvements located within a generally compact area, while corridors are linear in nature. Sites and corridors will generally be void of large vegetation, but may contain low-lying ground vegetation.

1. A Transportation and Utility System (TUS) "*window*" is an area potentially available for the location of transportation or utility corridors and sites. Windows represent areas of future opportunity where the applied management direction will not conflict with future designation of a TUS. A site-specific analysis is still required during project level planning, to identify resource protection needs within these areas. Windows are designated through the allocation of lands to TUS windows in their standards and guidelines.
2. A TUS "*avoidance area*" is an area where the establishment and use of transportation or utility corridors and sites is not desirable given the land use designation emphasis. A search for "*windows*" should be exhausted before TUS facilities are considered in avoidance areas. When feasible, these areas should be avoided through site-specific analysis during project level planning. Avoidance areas often include Congressionally and administratively designated areas. Although special environmental or procedural considerations may be required for these areas, these special designations do not preclude consideration and use as a TUS. Avoidance areas are designated through the allocation of lands to land use designations specifically identified as TUS avoidance areas in their standards and guidelines.
3. A TUS "*exclusion area*" is a large area (large enough to cause significant barriers) which legislatively precludes transportation and utility systems. There will be no exclusion areas on the Tongass National Forest due to special authorities provided in ANILCA, Title XI.
4. Accommodate new transportation and utility proposals within existing corridors, to the maximum extent feasible. (Consult 36 CFR 219.)
5. Site-specific locations and mitigation measures for unconstructed TUS's will be determined by project level planning which will analyze environment considerations, such as visual resources, wildlife habitat, and soil conditions.

VIII. Military Training Activities

- A. Authorize military training activities on National Forest System lands in accordance with the Master Agreement between the Department of Defense and the Department of Agriculture which governs the use of National Forest System Lands for these purposes. (Consult FSM 1530.)
 - 1. Authorize military training activities on National Forest System lands when these activities:
 - * Will be compatible with other uses.
 - * Conform to Land Use Designation direction.
 - * After the Department of Defense has determined and substantiated that lands under its administration are either unsuitable or unavailable.
 - 2. Determine probable effects of proposed activities, necessary mitigation measures, and effective monitoring techniques, on a case-by-case basis, with a site-specific environmental analysis, conducted in accordance with the Master Agreement.
 - 3. When local supplemental agreements with Military Agencies exist, consult such agreements for additional direction.

IX. Sanitary Landfills

- A. Manage landfills in accordance with the following national policy but subject to approved special provisions for Alaska.
 - 1. Require strict compliance with applicable Environmental Protection Agency guidelines.
 - 2. Avoid authorizing new solid waste disposal sites and the expansion of existing sites on National Forest System lands, subject to exceptions approved for the Alaska Region.
 - 3. Provide for solid waste disposal sites through exchange, sale under the Townsite Act (7 U.S.C. 1012a; 16 U.S.C. 478a), or selection by the State of Alaska of National Forest System lands when there is no viable alternative on non-Federal land and where there will be no adverse impacts to other National Forest resources or land. Encourage the State of Alaska to request conveyance of those areas suitable and needed for solid waste disposal near existing and proposed communities to eliminate the need to use National Forest System lands. Provide conditions for the conveyance document to assure the land will be controlled by a government entity and activities which interfere with the management and protection of adjacent National Forest System lands will not occur.
 - 4. Solid waste disposals must comply with EPA regulations in 40 CFR 257 and 258, and State of Alaska Administrative Code 18 AAC 60 et seq. These EPA regulations are very restrictive and may preclude continued operation of small landfills. Encourage close out of landfills on National Forest System lands. Those not closed prior to October 9, 1993, require continued monitoring and management of the landfill by the owner or operator for 30 years after landfill closure, in accordance with EPA regulations. Forest Service policy in FSM 2130 discourages waste disposal on National Forest System lands and allows this activity to occur only where it is determined to be the highest and best use of the land.
 - 5. Special situations in Alaska may require the continued use of National Forest System lands for some non-community domestic waste disposal in remote locations. Remote locations are island and mainland locations, accessible only by aircraft or boat, with no private land available for solid waste disposal. Examples of typical situations include:

- * Remote lodges under special use authorization
- * Mining activities in remote Forest locations
- * Remote Forest Service administrative sites
- * Forest Service contractors working in remote locations
- * Aquaculture sites in remote locations
- * The needs of the state and other Federal Agencies located in remote National Forest locations.

Even in these special situations, encourage Forest users to burn burnables and pack-out non-burnable waste materials (including ash residue) and remove them from National Forest System lands, to the extent feasible.

Land Ownership Administration: LAND123

I. Land Selections

- A. When making land management decisions, appropriately consider valid State selections (pursuant to the Alaska Statehood Act), Native selections (pursuant to the Alaska Native Claims Settlement Act, as amended, or the Haida Land Exchange Act of 1986), and Native Allotment claims (pursuant to the Alaska Native Allotment Act of 1906). Protect legal rights of the State of Alaska, Native Corporations, and Native individuals when managing selected or withdrawn lands, or lands under Native claim. Apply the following standards and guidelines to Land Use Designations encumbered by State selections, Native selections or withdrawals, and Native allotment applications, until these lands are either conveyed into State or private ownership, or they revert back to unencumbered National Forest System land.
 1. Cooperate with the State of Alaska, Native Corporations, Native allotment applicants, the Bureau of Land Management, the Bureau of Indian Affairs (or their designee), and other Federal agencies, to assist in processing legitimate claims or applications. Encourage other parties involved to assist in finalizing conveyance of full legal entitlement in a timely manner.
 2. Avoid Forest Service investment on lands encumbered by State selections, Native withdrawals or selections, or Native Allotment applications.
 3. Carefully review each selection, prior to conveyance, to identify third party interests and needed right-of-way reservations which are allowed under applicable legislation.
- B. Manage State selections, entered under authority of the Alaska Statehood Act, according to the following standards and guidelines. (Consult 43 CFR 2627.)
 1. Encourage conveyance of State selections adjacent to existing communities. Work with State agencies and local communities to substantially eliminate Forest ownership in and adjacent to communities where State, borough, or community governmental improvements and jurisdiction should logically preside.
 2. Obtain concurrence from the Alaska Department of Natural Resources prior to any surface-disturbing activity or granting any occupancy permit, contract, easement, or other similar use authorization on State selected lands, in accordance with the Alaska National Interest Lands Conservation Act, Section 906(k) and Forest Service Manual policy. (Consult FSM 5450.)
 3. Deposit 90 percent of all proceeds from contracts, leases, licenses, permits, rights-of-way, easements, or from trespass, on unconveyed State selected National Forest System lands, into a suspense account, for future transfer to the State upon conveyance. (Consult Sec. 906(k)(2) of ANILCA.)
- C. Apply the following standards and guidelines to Land Use Designations encumbered by Native selections or withdrawals, made under authority of the Alaska Native Claims Settlement Act (ANCSA), as amended, until these lands are either conveyed into private ownership, or they revert back to unencumbered National Forest System land. (Consult 43 CFR 2650.)

1. Do not issue occupancy permits, contracts, easements, or similar authorizations on lands selected, or withdrawn for selection, by a Native Corporation under authority of ANCSA, without coordination and consent from that Native Corporation, unless permission is first obtained from the Regional Forester. (Consult FSM 5450.)
 2. Do not allow timber harvest on lands selected by a Native Corporation under authority of ANCSA, which fall within a timber sale contract contingency area, except by agreement with that Native Corporation. (Consult ANCSA, as amended by Section 908 of the Alaska National Interest Lands Conservation Act. "Contingency Area" is defined in this section of ANILCA.)
 3. Deposit all proceeds from any contracts, leases, licenses, permits, rights-of-way, easements, or from trespass, on unconveyed National Forest System lands that are selected or withdrawn for selection under ANCSA, into an escrow account, for future transfer to the appropriate Native corporation, upon conveyance. (Consult Sec. 1411 of ANILCA.)
- D. Apply the following standards and guidelines to land use designations encumbered by Native land withdrawals, made under authority of the Haida Land Exchange Act of 1986, until these lands are either conveyed into private ownership, or they revert back to unencumbered National Forest System land.
1. During acceptance periods provided in the Haida Land Exchange Act of 1986, manage lands available for conveyance under Section 4 of that Act, to maintain their existing character and resources, subject to valid existing rights. (Consult Section 8, Haida Land Exchange Act of 1986.)
- E. Apply the following standards and guidelines to land use designations encumbered by Native Allotment applications, submitted under authority of the Alaska Native Allotment Act of 1906, until these lands are either conveyed into private ownership, or they revert back to unencumbered National Forest System land. (Consult 43 CFR 2561.)
1. Do not issue use authorizations, such as permits, contracts, or easements, on lands for which there is a Native Allotment application, without consent from the applicant and the Bureau of Indian Affairs (or their designee), unless the application has been adjudicated by BLM as being invalid and the case has been closed. Contact the Regional Forester prior to granting use authorizations within a valid claim area, as authorization from the Regional Forester may be required. Do not authorize construction of new roads on a valid claim area unless a Deed of Further Assurance has been obtained and recorded, or clearance has been received from the Regional Forester. (Consult FSM 5450.)

Lands Activity Maintenance and Landline Location: LAND23, LAND24

I. Establishing Forest Boundaries

- A. Apply the following standards and guidelines when maintaining established National Forest property boundary lines and corners, or when locating, surveying, and posting new National Forest property boundaries and corners.
 1. Coordinate with the Bureau of Land Management (BLM) for original boundary line survey. Encourage cooperative work with the BLM to mark and post original National Forest/State and National Forest/Native boundaries to Forest Service standards. The Forest Service will maintain these boundary lines and corners after the original survey. These boundaries should not be surveyed, marked or posted, until after conveyance of the land.
 2. Maintain the existing inventory of surveyed and unsurveyed boundary lines to establish survey priorities. Establish program priorities to coincide with Forest Service manual direction. (Consult FSM 7150.)

II. International Boundaries

- A. Apply the following standards and guidelines when locating or maintaining international boundary lines and corners.
 - 1. Ensure compliance with the United States/Canada Treaty of 24 February 1925. Coordinate the location, survey, posting, marking, and maintenance of the International Boundary with the U.S./Canada International Boundary Commission, U.S. Department of State.
 - 2. Ensure compliance with Presidential Proclamations of June 15, 1908 and May 3, 1912. Do not permit any occupancies or management activities, within 60 feet of the United States side of the United States/Canada International Boundary, without prior approval from the International Boundary Commission.

III. Legislated Boundaries

- A. Apply the following standards and guidelines when considering land-disturbing activities in Land Use Designations adjacent to Wilderness, Wilderness and Nonwilderness National Monument, and legislated LUD II boundaries.
 - 1. Boundaries should be surveyed, marked, and posted prior to implementing land-disturbing activities adjacent to Wilderness, Wilderness and Nonwilderness National Monument, and legislated LUD II. Approximate boundaries are not acceptable.
 - 2. Locating and marking boundaries should be supervised by a professional surveyor with the benefiting function funding all necessary survey activities. Consult FSM 2320, FSH 2309.19, and FSM 7150 (including R10 Supplement) for additional survey and marking standards.
 - 3. The District Ranger or Forest Supervisor who approves a project will ensure adjacent legislated boundaries are located and marked, making certain there is no encroachment.

Rights-of-Way (ROW): LAND25

I. Rights-of-Way Acquired

- A. Acquire, across non-National Forest System land, road and trail rights-of-way which are adequate for the protection, administration, and utilization of the Tongass National Forest. (Consult FSM 5460.)
 - 1. Generally, acquire rights-of-way identified in project plans at least one year prior to scheduled activity.
 - 2. Generally, acquire unlimited easements, granted in perpetuity. Limited easements (e.g., those authorizing administrative use, but not public use) may be acquired when public use is not desirable, as determined through the implementation planning process.
 - 3. Encourage the use of cost-share agreements, when feasible, to avoid economic and resource impacts associated with duplicate road systems and log transfer facilities.
 - 4. Monitor compliance with stipulations of existing rights-of-way to ensure long-term retention of needed rights-of-way. Dispose of rights-of-way which are no longer needed. Review easements acquired under Section 17(b) of the Alaska Native Claims Settlement Act, and take appropriate steps toward construction of transportation facilities prior to easement expiration dates.
 - 5. Identify and request all needed rights-of-way across lands selected by the state or Native organizations, as provided by Federal law. Carefully review selections prior to conveyance.
 - 6. Secure adequate rights-of-way before issuing contracts or constructing facilities in intermingled landownerships. (Consult FSM 5400.)

7. Follow the Bureau of Land Management/Forest Service Memorandum of Understanding on ANCSA 17(b) easement administration.
- B. Acquire log transfer facility (LTF) authorizations on tidelands in accordance with the following standards and guidelines.
 1. Coordinate LTF activities (location, construction, operation, etc.) with the U.S. Army Corps Engineers, U.S. Environmental Protection Agency, National Marine Fisheries Service, U.S. Fish and Wildlife Service, Alaska Department of Natural Resources, Alaska Office of Management and Budget (Division of Governmental Coordination), Alaska Department of Fish and Game, Alaska Department of Environmental Conservation, local communities, and adjacent landowners, as appropriate. (Also see the Transportation Forest-wide Standards and Guidelines in this Chapter.)
 2. Ensure LTF activities are consistent, to the maximum extent practicable, with the Alaska Coastal Zone Management Program.
 3. Acquire long-term leases (preferably at least 25 years) for permanent LTF sites.

Land Ownership Adjustment: LAND26

I. Priorities

- A. Land acquisition priorities have been described and summarized in the document, *"Alaska Submerged Lands Act Report, Analysis of Inholdings, Acquisition Priorities and Recommendations to Reduce Impacts on Conservation System Units in Alaska,"* dated August 1990, by U.S. Fish and Wildlife Service, Bureau of Land Management, National Park Service, and USDA Forest Service. Base acquisition decisions on this analysis and report, as updated by future revisions. Maps identifying the location of parcels are available from USDA Forest Service, Alaska Regional Office lands personnel.

Federal lands available for conveyance are those lands approved by the Regional Forester for selection by the State of Alaska, those lands selected by Native Corporations under ANCSA, and those Native allotment claims adjudicated valid by the BLM. These lands are available only to the respective applicants described above, as provided by Federal law. If applications or claims are relinquished or declared invalid, the affected lands are no longer available for conveyance.

Consider proposals for other lands not described above, on a case-by-case basis, using the following criteria. (Consult FSM 5400.)

1. Work cooperatively with the State of Alaska and Native Corporations to improve land ownership patterns and management opportunities resulting from State and Native land conveyances.
2. Retain National Forest System lands which best serve the public interest in Federal ownership.
3. Consolidate National Forest System lands, when feasible. Attempt to reduce miles of property boundary lines and number of corners, to locate and maintain.
4. Generally, acquire and convey land with as few reservations and outstanding rights as feasible. (Consult FSM 5420, 5430, and 5470.)
5. Avoid separating the surface and subsurface estate, unless it is clearly in the public interest. (Consult FSM 5430.)
6. Consider wetland and floodplain values.
7. Pursue land adjustments that reduce administrative costs or increase the output of goods and services. Avoid land adjustments that do not enhance Forest Service programs. (Consult FSM 5430.)
8. Generally, pursue land exchanges on an equal value basis. Exchanges may be made for other than equal value if the parties agree and the exchange is determined to be in the public interest, as provided in Section 1302(h) of the Alaska National

Interest Lands Conservation Act and Section 22(f) of the Alaska Native Claims Settlement Act, as amended by Section 17 of Public Law 94-204. (Consult FSM 5430.) When considering land exchanges of unequal value, submit the proposal through proper channels, for Congressional oversight, as appropriate, prior to entering into any binding agreements.

II. Acquisition

- A. Apply the following standards and guidelines for land acquisition activities.
 - 1. Acquire isolated inholdings at critical locations if public benefits will occur.
 - 2. Within Congressionally designated areas, such as Wilderness, acquire private inholdings as opportunities permit. Wilderness inholdings are priority acquisitions until after the State and Native selection process is completed.
 - 3. Within administratively designated areas, such as Special Interest Areas, generally acquire private inholdings, as opportunities arise.
 - 4. Acquire private lands necessary for efficient management of the Forest.
 - 5. Generally, acquire lands by exchange or donation. Attempt to purchase lands on a willing seller/willing buyer basis when exchange or donation is not feasible and funds are available for purchase.
 - 6. In any land adjustment proposal, consider performing a watershed and other resource condition assessment to determine resource restoration needs. Where rehabilitation is needed to comply with Federal Law such as the Clean Water Act, prepare a cost estimate for rehabilitation prior to the land acquisition.
 - 7. Evaluate parcels proposed for acquisition for the presence of hazardous substances, and document the findings, in conformance with established higher level guidelines for conducting these evaluations.

III. Conveyance of Federal Lands

- A. Apply the following standards and guidelines for conveyance of federal lands to non-federal owners.
 - 1. Do not exchange National Forest System lands selected by the State of Alaska, or a Native Corporation, or lands under Native allotment application, which have not yet been conveyed, unless specifically provided for in legislation. If the party holding the encumbrance desires ownership adjustments, they may relinquish their selection. The Forest Service may then pursue land ownership adjustment, if otherwise appropriate.
 - 2. Convey National Forest System lands which would best serve the public interest in private ownership, provided the action will not decrease ability to meet National Forest System management objectives. Examples may include:
 - * Isolated small parcels which are impractical to manage
 - * Parcels where a greater general public value can be derived in private ownership
 - * Areas necessary for community expansion. (Consult 36 CFR 254.)
 - 3. Within Congressionally designated areas, retain existing National Forest System lands unless exchanging out of these lands to acquire new lands, or interest in lands, for the purposes of ANILCA (Consult ANILCA Section 1302(h)). Within administratively designated areas, generally retain National Forest System land, unless there are compelling reasons for conveyance.

LAW ENFORCEMENT

Forest-wide Standards & Guidelines

Law Enforcement Activities: LAW

Promote a partnership of law enforcement personnel within the Forest Service organization in carrying out the agency's mission, especially in upholding federal laws and regulations that protect natural resources, agency employees, and the public. Develop and maintain trust, cooperation and collaboration between law enforcement personnel and other agency employees. (Consult FSM 5300)

MINERALS and GEOLOGY

Forest-wide Standards & Guidelines

Minerals and Geology Resource Preparation: MG11

I. *Resource Inventory*

- A. Maintain the Mineral Resource Inventory. Include historic and current mining activity, regional and local geology, access routes, and geologic and mineral terranes.
 - 1. Develop an inventory to meet or exceed Order 4 standards (1:250,000 map scale). Apply Order 3 inventory standards (1:63,300) as required to adequately represent data. (Consult FSM 2880.)

II. *Resource Planning*

- A. Assemble and provide minerals and geology information as needed for project planning. Such information will normally include a minerals and geology inventory and analysis, forecasts for minerals exploration and development activities, and geologic resource interpretations.

III. *Resource Preparation*

- A. Conduct compliance checks, validity and patent exams, and review operating plans, lease proposals, and applications. Provide expert testimony or opinions for contests, hearings, or appeals. Conduct geotechnical engineering and interpretive geology investigations as required.

IV. *Resource Coordination*

- A. Coordinate minerals and geology inventories and minerals administration with state and other Federal agencies including the USDI Bureau of Land Management, Bureau of Mines, and the Geologic Survey.
 - 1. Maintain Memoranda of Understanding (MOU's) and/or agreements with appropriate Federal, state, and local agencies and groups.

Minerals and Geology Administration: MG12

I. *Forest Lands Withdrawn From Mineral Entry.*

- A. Claimants with claims located in areas withdrawn from mineral entry retain valid existing rights, if such rights are established prior to the withdrawal date.
- B. Conduct on-the-ground validity examinations by a qualified minerals examiner to establish or reject valid existing rights on active mining claims within wilderness areas and other areas withdrawn from mineral entry.
- C. Permit reasonable access to mining claims in accordance with the provisions of an approved plan of operations.

II. *Forest Lands Open To Mineral Entry.*

- A. Encourage the exploration, development, and extraction of locatable and leasable minerals and energy resources.
- B. Assure prospectors and claimants their right of ingress and egress granted under the General Mining Law of 1872, ANILCA, and the National Forest Mining Regulations (36 CFR 228).
- C. Permit reasonable access to mining claims in accordance with the provisions of an approved plan of operations.

III. Plan of Operations

- A. A Notice of Intent and/or a plan of operations is required for locatable, leasable, and salable minerals. (Consult FSM 2810, 2820, 2850, and 36 CFR 228.)
 - 1. A plan of operations will receive prompt evaluation and action within the time frames established in 36 CFR 228.
 - 2. Conduct an environmental analysis with appropriate documentation for all operating plans.
- B. Work with claimants to develop a plan of operations that adequately mitigates adverse impacts to Land Use Designation objectives. Include mitigation measures for locatable and salable minerals and standard and special stipulations in leasing actions that are compatible with the scale of proposed development and commensurate with potential resource impacts.
 - 1. Maintain the habitats, to the maximum extent feasible, of anadromous fish and other foodfish, and maintain the present and continued productivity of such habitats when such habitats are affected by mining activities. Assess the effects on populations of such fish in consultation with appropriate state agencies. (Consult ANILCA, Section 505(a).)
 - 2. Apply appropriate Transportation Forest-wide Standards and Guidelines to the location and construction of mining roads and facilities.
 - 3. Reclaim disturbed areas in accordance with an approved plan of operations.
 - 4. Apply Best Management Practices (BMP's) to maintain water quality for the beneficial uses of water. (Consult Appendix C of this document and FSH 2509.22.)
 - 5. Periodically inspect minerals activities to determine if the operator is complying with the regulations of 36 CFR 228 and the approved plan of operations.

IV. Bonds

- A. A bond may be required for locatable, leasable, and salable mineral operations to ensure operator performance and site reclamation are completed. (Consult 36 CFR 228.)

V. Mineral Materials

- A. Permit mineral material sites only after an environmental analysis assures other resources are adequately protected, the site location and operating plan are consistent with the Land Use Designation emphasis, and such resources are not reasonably available on private land. Require bonds and reclamation as appropriate. (Consult FSM 2850 and 36 CFR 228.)
- B. Where the opportunity exists, design, excavate, and reclaim material sites to facilitate their use for dispersed recreation or other desirable uses such as conversion to salmonid rearing ponds and spawning channels.

VI. Split Estates

- A. Seek to avoid separating the surface and subsurface estates. Coordinate with BLM, the state, Native Corporations, and private landowners to manage split estates in accordance with individual patents or deeds.

VII. Paleontologic Resources

- A. For the collecting of paleontologic (fossil) resources on the National Forest, consult the guidance in FSM 2860.

RECREATION and TOURISM

Forest-wide Standards & Guidelines

Recreation Resource Inventory: REC111

I. Recreation Resource Opportunities

- A. Maintain the inventory of recreation resource opportunities throughout the Forest.
 - 1. Use the Recreation Opportunity Spectrum (ROS) system and Tongass National Forest Recreation Places Inventory. (Consult FSM 2310 and National/Regional ROS Handbooks.)
 - 2. Update existing ROS inventories as a part of specific project planning and implementation, and whenever project activities cause a change in recreation setting conditions significant enough to reclassify the affected area.
 - 3. Maintain the necessary data to determine the individual and/or cumulative changes in ROS class distribution throughout the Forest.

Recreation Resource Planning: REC112

I. Interagency Planning

- A. The principal feature that sets National Forest lands apart from most other suppliers of outdoor recreation is the ability to provide opportunities for generally unconfined outdoor recreation, free of urban influences. National policy directs that these special opportunities be maintained for current and future generations; and that National Forest recreation focus primarily on activities which require a large land base and provide a contrast to urbanization. As a part of the National Forest role of helping meet national and regional social needs, endeavor to encourage traditional American values such as a conservation ethic, appreciation of nature, national and community pride, and national and community well-being including the stability of lifestyle and character. Accomplished this through providing opportunities and programs which are appropriate to the forest environment, dependent upon natural settings, and which help participants experience and understand nature.
 - 1. Determine the appropriate role of the National Forest lands in providing natural resource-based recreation opportunities, sites, facilities, and experiences. Within the context of National policy, cooperate and coordinate with National, state, and local agencies in providing a balance of outdoor recreation opportunities throughout Southeast Alaska.
 - 2. Use the ROS framework of settings and experience opportunities to define the capabilities of National Forest lands to meet identified recreation needs and services. (Consult ROS Handbooks and Forest ROS maps.)
- B. Provide recreation opportunities on National Forest lands in concert with, and supplemental to, those opportunities which are located on other landownerships and jurisdictions. Generally, recreation areas, sites, and facilities located on National Forest lands should:
 - 1. Complement commercial public services (i.e., resorts, marinas, stores, service stations) within communities or on private or other public land.
 - 2. Support a system of anchorages suitable for recreation boats along small boat waterways which connect communities or provide access to popular recreation attractions.
 - 3. Provide other appropriate facilities to meet specific identified recreation needs on a case-by-case basis.

- C. Cooperatively participate with local communities and user groups when implementing recreation development projects. Implementation should:
 - 1. Involve the public and affected communities, landowners, and other affected interest groups in the project planning process.
 - 2. Recognize that recreation use by residents and tourists radiate from communities and service centers to use lands and facilities under a variety of ownerships and jurisdictions.
 - 3. Verify the local role of the Forest Service in providing recreation opportunities, services, and facilities.
 - 4. Verify the basis for developing Forest Service recreation-related projects.
 - 5. Identify sites and activities where joint or cooperative development or management is desirable. Include opportunities for such things as: on-site interpretation of natural and cultural resources, particularly on lands of mixed ownership; providing public information through joint publications; joint cabin reservation systems; or construction, operation, and maintenance agreements.
 - 6. Consult FSM 2300 and internal Service-wide Handbooks.

II. Integrated Resource Planning

- A. During non-recreation project planning, assess the effects of these projects on the diversity and quality of recreation settings and activity opportunities within, and adjacent to, the project area.
 - 1. Where recreation resources may be affected, analyze the opportunities foregone due to resource management actions. During project planning and design, consider valid substitutes for recreation settings and activity opportunities.
- B. Identify opportunities to enhance existing, and provide additional, recreation activities, opportunities and services where desirable to meet local or Forest-wide recreation demands. Give particular attention to opportunities which: are in relatively short supply within the day-use travel distance of communities, are important to tourism and commercial service providers, provide a base for visitor use of primitive and semi-primitive areas, compliment recreation programs of communities, the state, and private landowners, contribute to the supply of Semi-primitive Motorized opportunities, and those related to the unique combination of marine, wildlife, and fish resources characteristic of Southeast Alaska. Consider opportunities including, but not limited to:
 - * Fish viewing, angling, and fishing access.
 - * Ice fishing.
 - * Fuelwood gathering.
 - * Wildlife viewing.
 - * Hunting.
 - * Interpretation of natural or cultural resources.
 - * Interpretation of management activities.
 - * Snowmobile and/or cross-country skiing and access.
 - * Access to beaches and other attraction features.
 - * Loop travel routes (roads, trails, and water routes).
 - * Scenic marine and road travel corridors.
 - * Parking/camping places for recreation vehicles, bicyclists, and boaters.
 - * Resort and lodge opportunities to serve as visitor bases.
- C. Coordinate, to the extent feasible, recreation project development with fish and wildlife habitat improvement, and road projects.
- D. Designate the Forest open to Off-Highway Vehicles (OHV) unless site-specific closures are made. Wilderness areas are closed to OHV's except for snowmachines and for local traditional use of OHV's related to subsistence activities.

1. Coordinate off-highway vehicle (OHV) planning and management with other resource concerns and adjacent landowners.
2. Provide a diversity of OHV recreational opportunities across the forest where consistent with the criteria in FSM 2355, which includes:
 - * The use is compatible with established land management and resource objectives.
 - * The use is consistent with the capability and suitability of the resource.
 - * There is demonstrated demand which cannot be better satisfied elsewhere.
3. Review OHV plans and temporary designations implemented since the last review (consult 36 CFR 295). Develop other access and travel management plans by areas and/or districts as the need arises. Identify specific areas, roads, trails, and water surfaces that are open, restricted, or closed to motorized and non-motorized mechanical conveyance, watercraft, and conditions of use. Recreation, subsistence, and authorized uses may be considered separately depending on the circumstances.

III. *Tourism*

- A. Tourism is a major industry in Southeast Alaska. The forest provides the backdrop as well as the land base for many tourism activities, including several of the state's leading attractions. The size and extent of the forest has a profound influence on the amount and nature of opportunities for the tourism industry.
 1. Work with the tourism industry and government agencies in assessing the value and contribution of the industry to the economy of Southeast Alaska. Identify the role and contribution made by the Tongass National Forest to the industry and the region.
 2. Cooperate with the tourism industry and appropriate government agencies in conducting and assessing visitor studies. These studies include: identification of activities, attractions, and attributes visitors seek; response to management activities; demographic traits; and, detection of changing trends.
 3. Coordinate information and marketing efforts with tourism providers and promoters to complement efforts, to target markets for new and existing opportunities, and to meet Forest Service management objectives.
 4. Work with government agencies, organizations, and the private sector to identify, facilitate, and develop tourism opportunities.
 5. Consider access, infrastructure, and other needs of the tourism industry at the project planning level. Incorporate these needs into project design and implementation.

Recreation Use Administration: REC122

I. Coordination with wilderness management

- A. Evaluate the effects of location, design, and operation of developed sites and roads adjacent to Wilderness. Develop and operate projects to complement wilderness management objectives and to avoid degradation of wilderness values.
- B. Ensure that special-use activities and facilities adjacent to Wilderness are located, designed, and operated in a manner which complements wilderness management objectives and that avoids degradation of wilderness values.

II. Recreation Special Uses

A. Commercial Recreation Opportunities

1. Work with recreation service partners and the tourism industry in identifying and developing services and opportunities. Recreation service partners, through the

issuance of special-use authorizations, provide services and opportunities that supplement the use and enjoyment of the national forests by a variety of people.

- a. Identify opportunities for commercial recreation use, services, and developments.
 - b. Facilitate authorizing commercial recreation use, services, and developments by:
 - * Authorizing commercial recreational developments and services where there is a public need, and no private lands are available or suitable for development. Refer to each Land Use Designation management prescription to determine its appropriateness for development.
 - * Managing recreation special uses in accordance with the direction in LAND 122 - Special-Use Authorizations, and outfitter/guide services in this section.
 - * Working with recreation service partners to provide agency identity, customer information and programs, natural resource education, and to instill a land stewardship ethic.
2. Use the following guidelines in addressing the appropriateness of recreation special-use proposals in each of the Land Use Designations after evaluating factors in 1.b. above. They provide a framework to guide major and minor development proposals. Four strategies are identified for guidance; one is assigned to each Land Use Designation to address major and minor proposals (see next page). The definitions and strategies of major and minor are as follows:

Major Development

Major recreation and tourism developments provided by the private sector involve long-term commitment of the land base, with a moderate to high level of site modification. They involve large buildings or complexes of buildings and facilities, and often provide several services in a concentrated area. Comfort and convenience are provided for guests, and facilities can generally accommodate more than 12 people. The proposals are typically Development Scale 3, 4, or 5, and Roded Natural or Rural ROS settings. Site reclamation involves extensive removal of facilities and improvements, revegetation, recontouring, etc., and greater than 5 years to attain a natural appearance.

Examples include destination resorts and lodges, food and beverage services, downhill ski areas, marinas and gas stations, and full service campgrounds.

Minor Development

Minor recreation and tourism developments provided by the private sector involve only minor site modifications. They involve small rustic facilities and/or improvements, generally with a single purpose or service, and may involve several sites or an extensive area. Basic essentials are typically provided, and can generally accommodate 12 or fewer people per site. The proposals are typically Development Scale 1 and 2, with a Semi-Primitive ROS setting. Site reclamation involves simple removal of facilities and little or no revegetation; a natural appearance can be attained in a few years.

Examples include cabins, huts, small docks, cross-country ski trails with simple facilities, temporary or portable camps, simple and rustic campgrounds.

Major and Minor Recreation-related Developments

	<u>Major</u>	<u>Minor</u>
Not Allowed	Wilderness Wilderness National Monument Research Natural Area Wild River	Wilderness Wilderness National Monument Research Natural Area
Discouraged	Nonwilderness National Monument Remote Recreation Enacted Municipal Watershed LUD II Experimental Forest	Enacted Municipal Watershed Experimental Forest
Case-by-Case	Special Interest Area Old-growth Habitat Scenic River Modified Landscape Timber Production Minerals Transportation and Utility Systems	Nonwilderness National Monument Remote Recreation Special Interest Area Old-growth Habitat Wild River Modified Landscape Timber Production Minerals Transportation & Utility System LUD II
Compatible	Semi-remote Recreation Recreational River Scenic Viewshed	Semi-remote Recreation Recreational River Scenic Viewshed Scenic River

Definitions

Not Allowed	Recreation special-use developments are not allowed by law or regulation or are not consistent with agency policy and regulations.
Discouraged	Recreation special-use developments are generally not consistent with the objectives of the Land Use Designation. Development proposals require scrutiny of magnitude and scope for LUD conformance.
Case-by-Case	Recreation special-use developments may be compatible with the LUD objectives depending upon the scope, purpose, and magnitude of the proposal. Proposals will be evaluated on a case-by-case basis.
Compatible	Recreation special-use developments are compatible with this LUD, and applicants are encouraged to examine these areas first where there is a public need and no private lands are available or suitable for development.

3. When determined that a development or activity is suitable, use information in the following table in addressing the maximum amount of use for each facility or site in each Land Use Designation. The numbers in the table are guidelines; the actual numbers authorized could be larger or smaller depending on site-specific analysis. Refer to section 4.d.3) in this section for allocation guidelines.

Typical Tourism Developments and Activities by LUD

Land Use Designation	Permanent Overnight Facilities (number of overnight guests)	Day-use Facilities (number of day users)	Flight-based sightseeing (number of landings per site per day)	Boardwalk Paths and Trails	Equipment Storage	Campgrounds (# of sites per campground - includes RV sites)
Wilderness (WW)	none ¹	none	3 or 6 ^{2 3}	yes	none ¹	none
Wilderness Monument (WM)	none ¹	none	3 or 6 ^{2 3}	yes	none ¹	none
Non-Wilderness Monument (NM)	none ¹	none	3 or 10 ²	yes	none ¹	none
Research Natural Area (RA)	none	none	none	none	none	none
Special Interest Area (SA)	case-by-case ⁴	case-by-case ⁴	case-by-case ⁴	case-by-case ⁴	case-by-case ⁴	case-by-case ⁴
Remote Recreation (RM)	10	24	3	yes	yes	none
Enacted Municipal Watersheds (MW)	none	none	none	none	none	none
Old Growth (OG)	10	24	3	yes	yes	none
Semi-Remote Recreation (SM)	150	750	100	yes	yes	75
LUD II (L2)	10	24	3 or 10 ²	yes	yes	10
Wild River (WR)	10	24	3	yes	no	none
Scenic River (SR)	150	750	50	yes	yes	40
Recreational River (RR)	500	1600	100	yes	yes	75
Experimental Forest (EF)	none	none	none	case-by-case	none	none
Scenic Viewshed (SV)	500	1600	150	yes	yes	75

Typical Tourism Developments and Activities by LUD (continued)

Land Use Designation	Permanent Overnight Facilities (number of overnight guests)	Day-use Facilities (number of day users)	Flight-based sightseeing (number of landings per site per day)	Boardwalk Paths and Trails	Equipment Storage	Camp-grounds (# of sites per camp-ground - includes RV sites)
Modified Landscape (ML)	500	1600	150	yes	yes	75
Timber Production (TM)	500	1600	150	yes	yes	75
Minerals (MM)	None when in place, case-by-case otherwise	1600 ⁵	None when in place, case-by-case otherwise	case-by-case	None when in place, case-by-case otherwise	None when in place, case-by-case otherwise

¹ Except for ANILCA exceptions

² Consistent with inventoried ROS class (3 for Primitive ROS, 6 in other ROS classes in wilderness, 10 in other ROS classes outside of wilderness)

³ Public helicopter landings are currently prohibited (1/96). An analysis is being completed to determine whether helicopter landings are appropriate

⁴ Must be compatible with Special Interest Area objectives

⁵ To allow for mine tours

4. Public Outfitter/Guide services

- a. Authorize the services of qualified outfitters and guides to the public where the need for the service has been identified and is compatible with the objectives and management direction of the affected Land Use Designations. The services of outfitters and guides should facilitate the use, enjoyment, understanding, and appreciation of National Forest recreation settings.
- b. Manage outfitter and guide services as partnerships with the Forest Service, as a way to nurture and encourage assistance and support for attaining the objectives of the Land Use Designation, and to assist in increased public understanding and appreciation of the Forest Service's mission and goals.
- c. Encourage skilled and experienced individuals, organizations, and companies to conduct outfitting and guiding activities in a manner that assures National Forest visitors receive quality services.
- d. Administer Outfitter/Guide special-use authorizations in accordance with the direction in FSM 2720, FSH 2709.11 and Regional Supplements.
 - 1) Outfitting and guiding operations should not require permanent improvements occupying National Forest lands. Encourage operations which require only temporary facilities, easily removed at the end of the use season.

- 2) Authorize outfitter/guide operations on the basis of the following criteria:
 - * The affected ecosystem(s) have the capability to accommodate the expected kinds of activities and amounts of use without degradation of ecosystem composition and structure.
 - * Existing or proposed operations and activities are appropriate for the specific ROS settings within the Land Use Designation.
 - * Adverse impacts to popular or highly-valued local areas with outfitter/guide operations are avoided.
 - * There is a demonstrated public need for the services to be offered and/or the services will enhance the objectives of the Land Use Designation.
 - * The operations can be carried out in a manner that is compatible with existing or expected use by the general public and will not constitute *de facto* exclusive use areas.
 - * Adverse impacts to subsistence users are minimized.
- 3) Authorize outfitter/guide operations through the issuance of priority use permits, whenever possible, supplemented with temporary permits. Assign priority use and temporary use permits within a Land Use Designation based on the following:
 - * Generally allocate no more than one-half the appropriate capacity of the Land Use Designation to outfitter/guide operations on an administrative area (Chatham, Stikine, Ketchikan) basis. For specific locations, consider different allocations based on historical use, changing demand, spatial zoning, or temporal zoning. (Refer to the desired future condition for the Land Use Designation in terms of the desired ROS setting, associated encounters with other parties, and evidence of human activities.)
 - * Avoid adversely impacting popular or highly-valued local areas.
 - * *Party size and distribution of groups.* Generally consider a party size of no more than 12 persons for any one site or activity group within the Primitive and Semi-primitive ROS settings, and Wilderness Land Use Designations. A higher group size may be authorized where it is desirable to have a higher guide/client ratio for safety purposes or youth groups. In other ROS settings, consider site capacities and impacts to other users and resource values to establish party size.
- 4) Where there is surplus capacity not being used by the general public, temporary use for specific periods of time (not to exceed one year) may be authorized. Such temporary use does not qualify for credit toward priority use by a permit holder.
- e. Cooperate with state and local authorities and user organizations to resolve situations where illegal outfitters are known to be operating. (Consult FSM 5300 and Law Enforcement Forest-wide Standards & Guidelines.)

B. Non-commercial Recreation Uses

1. Issue no authorizations to construct new private recreation facilities, such as private recreation cabins.
2. Maintain non-commercial recreation special-use authorizations except as provided for in FSM 2347. Allow replacement of existing facilities with similar facilities.
3. Manage cabins and related structures which were existing, but unauthorized, prior to ANILCA (December 2, 1980), in accordance with the direction in LAND 122 - Cabins.

4. Manage recreation special uses in accordance with the direction in LAND122 - Special-Use Authorizations.

III. Recreation Settings

- A. Provide a broad spectrum of outdoor recreation opportunities in accordance with the existing capabilities of the National Forest as indicated by the ROS inventory, the ROS guidelines at the end of this section, and service-wide distribution.
 1. Manage recreation use in a manner that is compatible with the long-term objectives of the Land Use Designation. Maintain the capability of all Land Use Designations to provide appropriate quality recreation opportunities on a sustained basis.
 2. In Land Use Designations where nonrecreation resource management activities are emphasized, manage to continue providing the current settings and opportunities until scheduled activities and practices cause a change in the ROS setting. When scheduled activities change the recreation setting, manage the new setting in accordance with the appropriate ROS guidelines.
- B. Manage recreation resource activities and facilities in accordance with the established Regional guidelines and the ROS guidelines at the end of this section or Wilderness-specific ROS guidelines approved by the Regional Forester. All recreation planning and management activities will address the setting indicators. They are described by ROS class in the guidelines at the end of this section, and are defined as follows:
 1. *Visual Characteristics* - The Visual Quality Objective (VQO) describes varying degrees of allowable alteration of the characteristic landscape in each ROS setting. The key to managing landscape character in each ROS setting is to adopt the compatible Visual Quality Objective and its corresponding guidelines. (Consult FSH 2309.22.)
 2. *Access* - Access includes the mode of transport used within the area and service levels of roads.
 3. *Remoteness* - Remoteness concerns the extent to which individuals perceive themselves removed from the sights and sounds of human activity. Remoteness criteria can be modified to conform to natural barriers, screening, vegetative cover, or topographic relief.
 4. *Visitor management* - Visitor management includes both regulation and control of visitor activities as well as providing information and services to aid their enjoyment and use an area. A major reason underlying participation in outdoor recreation is to get away from the controls and constraints of the everyday world. Care and sensitivity are exercised in the methods used to implement visitor management. In managing recreation places, resolving behavioral problems should be given a high priority. The presence of controls and the way in which they are implemented is as much a part of the recreation setting as the physical environment.

The type, level, and location of information provided to users can enhance or detract from the desired experience. Generally, on-site information is appropriate in the more developed ROS settings, while off-site sources are more appropriate in the more primitive ROS settings and Wilderness.

5. *On-Site Development* - On-site development refers to the scale and appropriateness of site modification and facilities. Design and location of site development activities should consider the following criteria:
 - * *Extent of site development*. Is it limited to a few isolated locations or distributed throughout the area?

- * *Evidence of the activity.* Are proposed materials compatible with those found in the characteristic landscape? Will the activity meet the adopted Visual Quality Objective(s) of the Land Use Designation?
- * *Complexity and scale of the activity.* Are the scale and complexity appropriate for the intended use and compatible with other structures and attributes of a site?
- * *Purpose.* Are facilities for convenience and comfort, or safety and resource protection compatible with the overall objectives of the Land Use Designation?
- * *Development scale for recreation facilities.* Is the facility development scale compatible with the desired ROS class setting, in accordance with the following definitions?

Development Scale for Recreation Facilities

I.	<i>Minimum site modification.</i> Rustic/rudimentary improvements for site protection only.
II.	<i>Little site modification.</i> Rustic/rudimentary improvements for site protection and some comfort for user. On-land motorized access with some traffic controls.
III.	<i>Moderate site modification.</i> Facilities equally designed for resource protection and user comfort. Contemporary/rustic design of facilities. Interpretive services often informal, but on-site.
IV.	<i>Site heavily modified.</i> Some facilities strictly for user comfort and convenience of user. Roads hard surfaced with obvious traffic controls. High density units/acre.
V.	<i>High degree of site modification.</i> Facilities mostly designed for comfort and convenience of user. Flush toilets and electrical hook-ups common. Synthetic materials often used. Formal, sophisticated interpretive facilities available. Site often landscaped with exotic materials.

6. *Social Encounters* - The term social encounters refers to the number and type of other people met in the area, along travelways, or camped within sight or sound. They are generally measured by the number of parties an individual or group may encounter. A typical independent party consists of 3-4 people traveling as a social group. Guided or organization groups are typically larger.
7. *Visitor Impacts* - Visitor impacts refer to the affect of recreation use on other resources such as soil, vegetation, water, air, and wildlife. The management intent is not necessarily how to prevent human-induced change, but one of deciding how much change is acceptable, and the actions needed for control. In general, user expectations are for minimum signs of human-caused alterations at the primitive end of the ROS and more acceptance of alterations near the developed end. One method to reduce visitor impacts is through site hardening. Site hardening includes paving, barriers, campsites, trails, viewing platforms, etc.
8. Use the ROS charts at the end of this section in project planning and analysis, and as guidelines to establish appropriate levels of use, scale and kinds of facilities, Visual Quality Objectives, types of access, and services to meet local and Regional needs and desired recreation setting conditions.

IV. Developed Site Management

- A. Manage Development Scale 3, 4, and 5 sites (see above) for full service when at least one of the following are met:
 - 1. A campground is designated as a fee site.
 - 2. More than 20 percent of the designed capacity is being utilized.
 - 3. When the site is designated for group use and is under a reservation system and/or established user fee.
 - 4. The site is a boating site with constructed ramp.
 - 5. The site is a staffed visitor information center.

V. Recreation Construction and Rehabilitation

- A. Provide development facilities appropriate to the ROS setting where the private sector is not able or willing to meet the demand.
- B. Maintain cost-effective developed recreation facilities which complement non-Forest Service developments in the same community home range or service center area.
- C. Provide barrier-free, accessible facilities appropriate to the site development level and area ROS setting.
- D. Evaluate the location and need for recreation facilities which lie within identified 100-year floodplains as to the specific hazards and values involved with the site and its use. Thoroughly explore viable alternatives. (Consult FSM 2527.)
- E. Use regional recreation capital investment process and criteria for the identification of recreation construction and reconstruction projects.

VI. Interpretive Services

- A. Provide an Interpretive Services Program that is designed to accurately and adequately develop an interest and understanding of the environments of the Forest and Southeast Alaska, and the mission of the Forest Service in managing the National Forest.
- B. Assist visitors and users to understand the role of natural and cultural resources in the development of industry, heritage and culture in Southeast Alaska. Relate these roles to the rest of the state, Canada, and the nation.
- C. Promote visitor understanding of the National Forest System, Forest Research, and State and Private Forestry programs.
 - 1. Emphasize understanding of stewardship of public lands and their productivity through professional forest management with balanced use of natural resources.
 - 2. Develop Interpretive Services programs for all principal resource management programs. Information should emphasize the integration of management activities designed to achieve the goals and objectives developed for specific areas.
- D. Inform visitors of the distribution, differences, and roles of the Federal, state and private lands found in Southeast Alaska and the range of recreation and cultural interest opportunities and facilities available.
 - 1. Continue to pursue and implement cooperative interpretive partnerships with other Federal and state land management agencies consistent with the principal travel routes and activity centers used by forest visitors.
 - 2. Provide an array of imaginative and dynamic media by which interpretive messages are made available to the visitor. Use a spectrum of media and presentation designs that are appealing, appropriate for the setting, easily understood by the intended audience, and reflect the Forest Service as a professional and caring land management agency.

3. Continue to provide accurate and timely information about Southeast Alaska and the Tongass National Forest. Continue the Forest Service's leadership role for the Southeast Alaska Visitor Center in Ketchikan.
4. Continue to provide or improve interpretive services programs and facilities such as those at Mendenhall Glacier, Centennial Hall (Juneau), and aboard the Alaska Marine Highway ferries. Support shall include identification of current issues and events of interest to forest visitors, adequate staffing to meet program objectives, assistance in training the seasonal and volunteer staff, and objective evaluation of programs to assure accurate and positive coverage of the natural and cultural resources on the Tongass National Forest and their management.
5. Expand the use of the Alaska Natural History Association (ANHA) as an interpretive partner to provide forest visitors with a broad range of interpretive media. These may include, but are not limited to, publications, video and audio tapes, and other media that feature the natural and cultural resources of the Tongass National Forest and the heritage of Southeast Alaska. Encourage all types of support and donations to ANHA which can be used to develop additional materials and programs.
6. In partnership with communities, organizations, and individuals, develop additional ANHA outlets at locations that will best serve Forest customers.
7. Continue to support the Elderhostel Education Program in local communities and aboard the Alaska Marine Highway.
- E. Provide a coordinated program of awareness and training for all employees, and partners (including outfitter/guides and other public service permit holders) to ensure a consistent program of public service.
 1. Encourage other agency participation in Forest Interpretive Services training programs.
 2. Ensure that the Forest Service mission and image remain predominantly visible at all Forest Service facilities through the use of uniformed Forest Service personnel, the Forest Service shield, and other media.
 3. To the extent feasible, provide training about national forest resources, points of interest and management to all interested outfitter/guides, industry representatives and other partners.

VII. Recreation Use

- A. Gather recreation use information to use in project and forest planning. Many sources of information should be used to gather data, such as cabin permits, campground, and visitor center use, trailhead registers, dispersed sampling, outfitter/guides, ferry and cruiseship arrivals, and employee or public observations.
- B. Identify those recreation uses that may be in conflict with each other. Reduce recreation user conflicts and polarization. Work with affected publics in finding solutions to defuse or resolve conflicts or concerns.

**ROS Class
Primitive**

Setting Indicators	Standards and Guidelines
Visual Quality	Not to exceed the Retention Visual Quality Objective. An existing visual condition of Preservation is fully compatible and encouraged.
Access	Cross-country travel and travel on non-motorized trails and on waterways is typical. Use of airplanes, helicopters, motorboats and snowmachines for traditional activities, subsistence, emergency search and rescue, and other authorized resource management activities may occur but is rare.
Remoteness	No or infrequent sights and sounds of human activity are present. Setting is located more than 1.5 hours walking or paddling distance, or 3 miles, from any human developments other than marine travelways. Areas are generally greater than 5,000 acres, but may be smaller if contiguous with a Semi-primitive class.
Visitor Management	On-site regimentation and controls are very rare. Signing is limited to directional information and safety. There are no on-site interpretive facilities. There is great opportunity for discovery on the part of the users.
On-site Recreation Development	Structures do not exceed Development Scale I, except for public recreation cabins, and are maintained for appropriate levels of use.
Social Encounters	User meets less than 3 parties per day during trip. No other parties are within sight or sound of dispersed campsites or cabins. Maximum party size is generally 12 people.
Visitor Impacts	Visitor-caused impacts to resources are slight and usually not noticeable the following year. Site hardening is limited to boardwalk trails and necessary boat moorings or bearproof food caches and public recreation cabins.

**ROS Class
Semi-Primitive Non-Motorized**

Setting Indicators	Standards and Guidelines
Visual Quality	Not to exceed the Retention Visual Quality Objective. An existing visual condition of Preservation is fully compatible and encouraged.
Access	Cross-country travel and travel on non-motorized trails is typical. Use of airplanes, helicopters, motorboats and snowmachines for traditional activities, subsistence, emergency search and rescue, and other authorized resource management activities may occur unless specifically restricted for safety and/or resource protection purposes.
Remoteness	Nearby sights or sounds of human activity are rare, but distant sights or sounds may occur. Setting is located more than 1/2 hour walk or paddle, or approximately 1/2 mile from: 1) infrequently traveled waterways; 2) roads and trails open to motorized recreation use, and 3) clearcut harvest areas. Aircraft access is only occasional. Areas are generally greater than 2,500 acres but may be smaller if contiguous with Primitive or Semi-primitive classes.
Visitor Management	On-site regimentation and controls are rare. Visitor information facilities may be used to interpret cultural and natural resource features, but are not elaborate and harmonize with the setting.
On-site Recreation Development	Facilities and structures generally do not exceed Development Scale II and are maintained to accommodate the types and levels of use anticipated for the site. Forest Service recreation cabins are fully compatible.
Social Encounters	User meets less than 10 parties per day (6 parties per day in wilderness) on trails and waterways during 80% of the primary use season. No other parties are within sight or sound of dispersed campsites during 80% of the primary use season. Maximum party size is generally 12-18 people.
Visitor Impacts	Visitor-caused impacts to resources are rare and usually not long-lasting. Site hardening is limited to boardwalk trails, boat tramways, moorings and docks, bearproof food cache facilities and rustic public recreation cabins.

**ROS Class
Semi-Primitive Motorized**

Setting Indicators	Standards and Guidelines
Visual Quality	Not to exceed the Partial Retention Visual Quality Objective. Existing visual conditions ranging from Preservation through Retention are fully compatible and encouraged.
Access	Travel on motorized and non-motorized trails and Traffic Service Level D roads, although some Traffic Service Level C roads provide access to and through the area. Use by high clearance vehicles and motorized water travel is common. Road density is less than one mile per square mile. Off-road snowmachine travel on snow may occur.
Remoteness	Nearby sights or sounds of human activity are rare, but distant sights or sounds may occur. Setting is located within 1/2 hour walk or paddle or within 1/2 mile of infrequently traveled waterways or small aircraft access points and/or roads which are open and maintained for passage by high clearance and four-wheel drive vehicles (Maintenance Level 2) and provide access to recreation opportunities and facilities. Areas are generally greater than 2,500 acres but may be smaller if contiguous with Primitive or Semi-Primitive classes.
Visitor Management	On-site regimentation and controls are few. Control facilities consist primarily of informational signs and site-specific road closures. Visitor information facilities may be used to interpret cultural and natural resource features, but are not elaborate and harmonize with the setting.
On-site Recreation Development	Facilities and structures generally do not exceed Development Scale II and are maintained to accommodate the types and levels of use anticipated for the site and area.
Social Encounters	User meets less than 10 parties per day (6 parties per day in wilderness) on trails, roads, and shorelines during 80% of the primary use season. During 80% of the primary use season no other parties are visible from campsites. Maximum party size is generally 12-18 people.
Visitor Impacts	Visitor-caused impacts may be noticeable, but not degrading to basic resource elements. Site hardening is very infrequent, but, when it occurs, is in harmony with, and appropriate for, the natural-appearing backcountry setting.

ROS Class Roaded Natural

Setting Indicators	Standards and Guidelines
Visual Quality	Not to exceed the Modification Visual Quality Objective and are typically Partial Retention. Existing visual conditions ranging from Preservation through Retention are fully compatible and encouraged.
Access	All forms of access and travel modes may occur. Access to and through the area is typically by passenger vehicle, although motorized use may be restricted to provide for resource protection, user safety, or to provide a diversity of recreation opportunity.
Remoteness	Remoteness is of little importance, but low to moderate concentrations of human sights and sounds are preferred. Provide opportunities within 1/2 mile of moderate to heavily traveled waterways and/or roads which are maintained to Levels 3, 4, and 5 and open for use by the public or those areas that receive heavy small aircraft travel.
Visitor Management	On-site regimentation and controls are obvious. Control facilities such as parking areas, barriers and signs harmonize with the natural environment. Visitor information facilities are not elaborate or complex.
On-site Recreation Development	Facilities and structures generally do not exceed Development Scale III and are maintained to accommodate the types and levels of use anticipated for the site and area. Typical facilities include outdoor interpretive displays and rustic campgrounds and picnic areas.
Social Encounters	User meets less than 20 other parties per day on trails and dispersed areas, during at least 80% of the primary use season. User may meet numerous other parties on roads and developed recreation sites. Developed sites often are at full capacity but do not exceed 80% of the design capacity over the season of operation.
Visitor Impacts	Visitor-caused impacts are noticeable, but not degrading to basic resource elements nor do they exceed established Visual Quality Objectives. Site hardening may be dominant, but is in harmony with natural-appearing landscape and appropriate for the site and setting.

**ROS Class
Roaded Modified**

Setting Indicators	Standards and Guidelines
Visual Quality	Not to exceed the Maximum Modification Visual Quality Objective. Apply visual management techniques to soften effects of maximum modification conditions in the foreground of sensitive travel routes and recreation sites.
Access	All forms of access and travel modes may occur, although roads are generally not well suited to highway-type vehicles. OHV use on designated routes or areas is encouraged. Use by high clearance vehicles is common.
Remoteness	Remoteness from urban conditions and high concentrations of people is important. Low concentrations of human sights and sounds in a backcountry roaded setting are preferred. These areas are accessed by Forest roads which are maintained to Levels 2, 3, and 4 and are available for public use. They generally involve areas with timber management activities.
Visitor Management	On-site regimentation and controls are few. Control facilities are appropriate for the predominating backcountry roaded setting. Visitor information facilities may be used to interpret management activities, but are not elaborate and are appropriate for the setting.
On-site Recreation Development	Facilities and structures generally do not exceed Development Scale II and are maintained to accommodate the types and levels of use anticipated for the site and area.
Social Encounters	User meets less than 20 other parties per day on trails and dispersed areas during at least 80% of the primary use season. Numerous other parties may be encountered on roads. Few, if any, other parties are visible at dispersed campsites.
Visitor Impacts	Visitor-caused impacts are noticeable, but not degrading to basic resource elements. Site hardening may dominate at campsites and parking areas, but is in harmony with, and appropriate for, backcountry roaded setting.

**ROS Class
Rural**

Setting Indicators	Standards and Guidelines
Visual Quality	Not to exceed Modification in the Foreground and Maximum Modification in middleground.
Access	All forms of access and travel modes may occur, although access to and through the area is primarily by passenger vehicle. Road and trail surfaces are often hardened.
Remoteness	Remoteness is of little importance, and moderate to high concentrations of people and sights and sounds of human activity are acceptable when not continuous. Provide opportunities within 1/2 mile of heavily traveled roads and state highways or areas that receive heavy aircraft travel.
Visitor Management	On-site regimentation and controls are obvious. Control facilities such as parking areas, medians, and barriers harmonize with natural/exotic landscaping. Information and interpretive facilities may be complex and dominant on developed sites.
On-site Recreation Development	All Development Scales (I-V) are appropriate and maintained at intended standards necessary to accommodate the types and levels of use anticipated for the site and area. Facilities typically include visitor centers, major campgrounds, and other facilities for concentrated use.
Social Encounters	User may meet more than 20 other parties per day on trails and in dispersed areas; no standard for encounters on roads and developed facilities. Developed sites often are at full capacity, but do not exceed 80% of the design capacity over the operating season.
Visitor Impacts	Visitor-caused impacts are noticeable, but not degrading to basic resource elements nor do they exceed established Visual Quality Objectives. Site hardening may be dominate, but is in harmony with natural/exotic landscape and appropriate for the site and setting.

**ROS Class
Urban**

Setting Indicators	Standards and Guidelines
Visual Quality	Not to exceed the Modification Visual Quality Objective in the foreground and Maximum Modification in middle ground.
Access	Access and travel facilities are highly intense, motorized and often with mass transit supplements.
Remoteness	Remoteness is not important. High concentrations of people, and sights and sounds of human activity are acceptable.
Visitor Management	Intensive on-site controls are numerous and obvious. Information and interpretive facilities may be complex and dominant.
On-site Recreation Development	All Development Scales (I-V) are appropriate and maintained at intended standards necessary to accommodate the types and levels of use anticipated for the site and area. Synthetic materials are commonly used. Facility design may be highly complex and refined, but in harmony or complimentary to the site. Facilities typically include visitor centers, major campgrounds and other facilities for concentrated use.
Social Encounters	Interaction between large numbers of users is high. Sites often are at full capacity, but do not exceed 80% of the design capacity over the operating season.
Visitor Impacts	Visitor-caused impacts are noticeable, but not degrading to basic resource elements or exceed established visual quality objectives. Site hardening may be dominant, but is in harmony with natural/exotic landscape and appropriate for the site and setting.

RIPARIAN

Forest-wide Standards & Guidelines

Riparian Area: RIP1

I. Objectives

- A. Seek to maintain riparian areas in natural conditions, for fish, other aquatic life, old-growth and riparian-associated wildlife species, water-related recreation and to provide for ecosystem processes, including important aquatic and land interactions. For further direction, refer to the Fish, Biodiversity, Wildlife, Recreation and Tourism, Beach Fringe and Estuary, and Soils and Water Forest-wide Standards and Guidelines. The following is a list of objectives pertaining to riparian areas. (Also consult FSM 2526.)
 1. Assure the protection of riparian habitat. (Consult Tongass Timber Reform Act, Section 103 (a); and ANILCA, section 705 (e).)
 2. Manage riparian areas for short and long-term productivity.
 3. Seek to maintain natural streambank and stream channel processes.
 4. Seek to maintain natural and beneficial quantities of large woody debris over the short and long term.
 5. Provide for the beneficial uses of riparian areas by maintaining water quality. (Consult Best Management Practices, Chapter 10 of the Soil & Water Conservation Handbook, FSH 2509.22 and Appendix C of this document.)
 6. Consider the management of both terrestrial and aquatic resources when managing riparian areas. Consider the effects of terrestrial and aquatic processes on riparian resources.
 7. In watersheds with intermingled land ownership, cooperate with the other landowners in striving to achieve healthy riparian areas.
 8. Coordinate road management activities to recognize the needs of wildlife and ensure passage of fish at road crossings. (Consult the Aquatic Habitat Management Handbook, FSH 2609.24.)
 9. Consider the effect of management (including windthrow) of adjacent areas on the riparian areas.
 10. Coordinate and consult with state and federal agencies on riparian management issues as appropriate. Meet state standards for federal consistency to the maximum extent practicable under the Coastal Zone Management Act and Alaska Coastal Management Program.

RIPARIAN INVENTORY: RIP2

I. Inventory

- A. Riparian areas encompass the zone of interaction between the aquatic and terrestrial ecosystems, including riparian streamsides, lakes and floodplains, with distinctive resource values and characteristics. Identify riparian areas during Forest and project planning. Computer-based inventory data which includes stream channel types, plant associations, landforms and soil types can be used. At the project implementation stage, more detailed inventory is required where riparian resources may be affected.
 1. Consult the Fish Forest-wide Standards and Guidelines for direction on maintenance of the channel type and stream class inventories.
 2. Consult the Soil and Water Forest-wide Standards and Guidelines for direction on maintenance of the soils, landforms, and plant association inventory (SRI inventory) and consult the Watershed Improvement Needs inventory.

RIPARIAN PLANNING: RIP3

I. *Project Planning*

- A. Where disturbances are planned, consider quantitative and qualitative factors such as:
 - * erosion processes
 - * watershed hydrology
 - * vegetation
 - * stream channel morphology
 - * water quality
 - * species and habitats
 - * human uses

Document analysis procedures and findings.

- B. On those projects and activities that are in, or influence, riparian areas, assure interdisciplinary involvement and consideration of riparian resources in project planning and in the environmental analysis process.
- C. Ensure that project plans are communicated to permittees, contractors, and purchasers and that they understand riparian objectives.
- D. Evaluate riparian area windthrow risk when locating and designing adjacent management activities. Minimize accelerated windthrow to the extent feasible. Consult BMP 12.6a of the Soil and Water Conservation Handbook.

II. *General Standards and Guidelines by Activity*

- A. Special Use Administration of Lands (Non-Recreation).
 - 1. Permit activities which are dependent upon riparian resources and do not significantly reduce the capability of the area to: 1) maintain or improve associated fish or wildlife habitat, or 2) protect water quality for beneficial uses.
- B. Minerals and Geology Administration, plan of operations.
 - 1. Encourage use of state-of-the-art techniques for developing minerals to reduce impacts to the extent feasible. Include mitigation measures that are compatible with the scale of proposed development and commensurate with potential resource impacts.
 - 2. Apply appropriate Transportation Forest-wide Standards and Guidelines to the location and construction of mining roads.
 - 3. Manage mineral exploration and development activities to be compatible with the goals and objectives for riparian areas.
 - 4. Manage mineral activities to maintain the present and continued productivity of anadromous fish and other foodfish habitat to the maximum extent feasible. (Consult ANILCA, Sec.505 (a).)
 - 5. Apply timing restrictions to instream construction and other minerals activities, as needed, to protect fisheries habitat and mitigate adverse sedimentation; and to avoid critical wildlife mating, hatching, and migrating periods.
 - 6. Minimize the effects of mineral development and related land disturbance activities on the beneficial uses of water by applying Best Management Practices.
 - 7. Locate material sites and marine transfer facilities outside riparian areas if reasonable alternatives exist.
 - 8. Ensure that disturbed areas are revegetated in accordance with project plans.
 - 9. Approve reclamation plans in which mineral activities leave project areas as natural in appearance and function, as is feasible.
- C. Recreation Use Administration
 - 1. Locate, design, and operate only those recreation projects which are necessary to accommodate public use of the water and shoreline areas (i.e., boat or

floatplane docks, launching ramps and associated access roads and trails). Where feasible, locate parking, campgrounds, sanitation and other recreation facilities outside the riparian areas to avoid adverse effects on water quality and riparian function.

2. For existing facilities, consider relocating the facility outside of the riparian area. Consideration should be based on current and anticipated effects on riparian values, desired recreation experience, public issues, application of Best Management Practices to minimize the effects of recreation facilities on the beneficial uses of water, and costs of relocating the facility.

D. Soil Inventory

1. Verify and define riparian areas and high hazard soils on the ground during project level planning.

E. Watershed Resource Planning

1. Manage activities to minimize adverse effects on the beneficial uses of water and to protect the aquatic and terrestrial riparian habitats, channel and streambanks, and provide for floodplain stability.
 - a. Identify soil and water quality requirements during the environmental analysis for project-level activities.
 - b. Apply Best Management Practices to minimize the effects of land disturbing activities on the beneficial uses of water.
 - c. Determine floodplain values and plan to avoid, where possible, the long and short-term adverse impacts to soil and water resources associated with the occupancy and modification of floodplains.

F. Timber Resource Planning

1. No commercial harvest is allowed within 100 feet distance either side of Class I streams and Class II streams which flow directly into a Class I stream (Tongass Timber Reform Act, 1990).
 - a. Included in the definition of Class II streams flowing directly into a Class I stream are all Class II tributaries of a Class II stream, that flow into a Class I stream without an intervening Class III segment. Mandatory minimum 100 foot buffers will not apply to: 1) A Class II stream that flows directly into the ocean, or joins a Class I stream only at lower than mean high tide; and 2) A Class II tributary stream segment that flows into an identifiable Class III stream that in turn flows into a Class I stream. These two instances clearly do not "...flow directly into..." a Class I stream.
 - b. The 100 foot measure is a horizontal distance measure from both bankfull margins.
2. Apply Best Management Practices to minimize the effects of timber harvest and related land disturbance activities on beneficial uses of water.
3. Discourage personal use woodcutting within 100 feet each side of Class I streams, and within 100 feet of Class II streams which flow directly into Class I streams. Avoid other riparian areas when other suitable locations for personal use woodcutting are available.

G. Timber Sale Preparation

1. In location and design of timber harvest activities, require special consideration and mitigation to ensure that riparian area characteristics for fish and wildlife habitat, water quality, and other riparian-associated resources are maintained.
2. Provide protection to fish and wildlife during critical periods of their life cycles by applying seasonal restrictions on timber harvest activities, as needed.
3. When stream crossings are required to harvest timber, perform site-specific investigations to determine the environmental impacts associated with constructing road crossings versus allowing yarding corridors, on the riparian areas.

4. Plan timber harvest settings that cross or include streamcourses or include V-notches to avoid significant adverse impacts to the riparian habitat or the soil and water resources. Unless stated otherwise in the Process Group direction, the following apply:
 - a. Trees or products yarded across or along streamcourses shall be fully suspended when crossing the streamcourse or yarding the full length of the stream or drainage, unless alternatives are developed in the operating plan or timber sale contract which meet the objectives for riparian areas.
 - b. Unless agreed otherwise in the operating plan or timber sale contract, and consistent with safe practices, trees identified for harvest should be felled so they do not fall within a "no commercial timber harvest" area in the riparian area or into a streamcourse. Trees may be wedged, jacked, lined, or otherwise pulled when necessary. Trees accidentally felled into streamcourses or windfallen trees shall be removed only following approval of the Sale Officer, and only in a manner consistent with the protection of the streamcourse and riparian area.
 - c. At the time agreed in the operating plan or timber sale contract, all trees, except those within guyline circles, which cannot be felled to avoid falling in streamcourses, should be left standing until yarding is in progress on the landing to which the trees will be yarded. Trees within the guyline circle will be felled as agreed in the operating plan or timber sale contract.
 - d. Split yard away from streams whenever feasible.
 - e. Interdisciplinary review of sale unit layout during planning should evaluate potential consequences of alternatives for cutting or leaving trees in V-notches. Among factors which should be considered are soil, watershed, and other resource information, blowdown potential, and yarding capability.
 - f. Allow salvage of material if objectives for the riparian area can be met. Where salvage is allowed, normally there will be no salvage within 100 feet in width on each side of Class I streams or on those Class II streams which flow directly into Class I streams. Salvage in the 100 feet on each side of Class I and II streams should only be considered in order to maintain or protect resources within the riparian area. This salvage does not contribute to the Allowable Sale Quantity.

III. *Lakes and Ponds Specific Standards and Guidelines for Timber Harvest*

- A. Class I (anadromous lakes and high value sport and subsistence fisheries) Protection
 1. No commercial timber harvest within 100 feet of the lake margin or within the riparian area (greatest of riparian vegetation or soils, riparian associated wetland or one-site potential tree height (to be determined at the project level)).
 2. Allow only uneven-aged management for an additional 400 feet beyond the no commercial harvest zone.
- B. Class II (all remaining lakes and ponds greater than 5 acres)
 1. No commercial timber harvest within 100 feet of the lake margin.

IV. *Stream Process Group Specific Standards and Guidelines for Timber Harvest*

Stream Process Groups is a classification of stream channels which share similar formative processes. They reflect the long term interaction of geology, landform, climate, and riparian vegetation. Classification considers the interrelationships between the runoff, sediment transport and vegetation along the stream banks. The following standards and guidelines are designed to provide essentially natural watershed function and channel processes.

The standards and guidelines are to be applied when a greater level of protection for the riparian area is not in effect (e.g. Designated Wilderness or LUD II areas).

- A. The guidelines which follow may be modified (See IV.F.1. for no commercial harvest standard). However, modification of these guidelines may occur only on a site-specific basis following an analysis of pertinent issues and documentation of the findings. Site-specific analysis should be conducted with a sound understanding of the physical and biological processes occurring within the watershed. Modification of the guidelines must meet the objectives for the riparian area and the stream process group and be approved by the responsible line officer.
- B. Stream Class IV will be treated as part of the hillside under slope stability standards and guidelines (see Soil and Water Forest-wide Standards and Guidelines). Apply Best Management Practices.
- C. **The three options presented by process groups represent three relative levels of risk of impacts to the stream channel processes and aquatic resources. Apply the options as in the following table:**

Application of Riparian Options by Alternative

	Alts. 1,4,5,6,8	Alts. 2,7	Alt. 3	Alt. 9
Higher Value Watersheds*	Option 2	Option 3	Option 1	TTRA/BMP
Other Areas	Option 3	Option 3	Option 2	TTRA/BMP

*These watersheds received a rating of 60 or higher in the fish portion of the Forest Habitat Integrity Plan (ADFG, 1982).

- D. The following tables provide the standards and guidelines for timber harvest activities. Special definitions for the tables:

- * Where the direction states "no commercial timber harvest", this is a standard and means that commercial timber shall be prohibited (Tongass Timber Reform Act of 1990).
- * Where the direction states "no programmed commercial timber", this is a guideline and means that no timber harvest will be scheduled, but that unprogrammed commercial timber harvest could be allowed. Among other reasons, unprogrammed commercial timber harvest may include timber sold as part of a salvage sale, for insect and disease abatement purposes, and for specialty wood products. Timber harvest would have to meet the objectives for the riparian area as determined by an analysis of site-specific conditions with an understanding of the watershed functions and stream channel processes.
- * Site-potential tree height refers to the ability of a specific site to grow trees to a certain average height. The reason site-potential tree heights are identified is to give zones of special management which are within or adjacent to a riparian area an ecological foundation. Since large wood recruitment to the aquatic ecosystem is a primary concern, the maximum average tree height is considered to be the greatest width of concern for large wood recruitment. Average maximum tree heights for each channel process group will be used unless site-potential tree heights are calculated for channel types on a project basis.
- * Distance for the first 100 feet from the stream channel is measured horizontally. All other measured distances are slope distances.

1. Process Groups (see following tables)

Process Group: Moderate Gradient/Mixed Control

(MM1, MM2, and GO4 channels)

Desired condition: Provide for the retention and recruitment of large wood to the stream channel, and stable riparian vegetation for shade, floodplain dynamic processes and sources of organic inputs.

In the stream, do not diminish habitat condition through time. Use the fish habitat objectives (AFHA, 1995) as a reference to evaluate habitat conditions relative to the natural range for the process group. For MM channels these would include large wood size and distribution, pool size and frequency, and channel morphology.

Objective: Manage for large wood by assessing the site's old-growth type and managing for at least the minimum size distribution for large downed wood on floodplain and riparian stands. Maintain natural surface drainage patterns for floodplain areas. Maintain fish access to the entire range of habitat.

Description: These channels are commonly found in transition zones between High Gradient Contained streams and Floodplain channels. The MM channels are located in narrow valleys, footslopes or sloping and rolling lowlands. Stream channels gradients range from 2 to 6 percent. Channel containment is variable as structural control may be intermittent or only along one bank. Overall channel pattern is straight. Stream flow is dependent upon mountain slope runoff and the sediment regime is balanced (input equals output). Channel substrate ranges from coarse gravel to boulder size material. Typical site potential tree height is 120 feet.

Application of Riparian Options by Alternative

	Alts.1,4,5,6,8	Alts. 2,7	Alt. 3	Alt. 9
Higher Value Watersheds	Option 2	Option 3	Option 1	TTRA/BMP
Other Areas	Option 3	Option 3	Option 2	TTRA/BMP

Stream Class/Activity	Option 1	Option 2	Option 3
I/Timber Harvest	No programmed commercial harvest in the riparian area (greatest of floodplain, riparian vegetation or soils, riparian associated wetland fens, or 240 feet (the height of two site-potential trees)). Only unevenaged management is allowed for an additional 120 feet beyond the no harvest zone.	No programmed commercial harvest in the riparian area (greatest of floodplain, riparian vegetation or soils, riparian associated wetland fens, or 120 feet (the height of one site-potential tree)). Only unevenaged management is allowed for 120 feet beyond the no harvest zone.	No commercial timber harvest within 100 feet of the stream channel. Allow single tree selection on remainder of the riparian area (greatest of floodplain, riparian vegetation or soils, or riparian associated wetland fens).

Stream Class/Activity	Option 1	Option 2	Option 3
II/Timber Harvest	Same as for this option, Class I.	Same as for this option, Class I.	For streams flowing directly into a class I, same as for this option, Class I. For streams which do not flow directly into a Class I, allow single tree selection harvest within 25 feet of MM1 channels and within 60 feet of MM2 channels. All harvest methods are available outside of these areas.
III/Timber Harvest	Typically not present but if class III or IV occur use the guidelines for High Gradient Contained Class III or Class IV, as appropriate.	Same as Option 1.	Typically not present. When class III does occur, allow single tree selection within 25 feet of MM1 channels. All harvest methods are available on remaining area while meeting objectives.
I,II & III/Timber Salvage	Not allowed.	Allow in the height of the 2nd site-potential tree area, while meeting objectives. Otherwise not allowed.	Allow, while meeting objectives.
I,II & III/Harvest Controls	Fully suspend trees over the bankfull width of the stream when yarding. Minimize yarding corridors within the riparian area. Yard in a manner to assure no barring of mineral soil (<1%) and such that new channelization does not occur across the entire floodplain. The objective is to minimize surface soil disturbance and formation of new channels (BMP 13.9).	Same for all options.	Same for all options plus final harvest would incorporate undulating unit boundaries to limit the amount of continuous disturbance parallel to the streambank.
I,II & III/ Roads, Borrow Pits, Drainage Structures	Special road construction techniques may be required to ensure fish passage. Maintain fish migration where needed and avoid diverting surface drainage channels.	Same for all options.	Same for all options.

Note: Except for the Standard "no commercial timber harvest requirement within 100 feet of Class I streams and Class II streams which flow directly into Class I's", the remaining guidelines may be modified. Modification of these guidelines may occur only on a site-specific basis following an analysis of pertinent issues and documentation of the findings.

Process Group: High Gradient Contained
(HC1, HC2, HC3, HC4, HC5, HC6, HC8 and HC9 channels)

Desired condition: Maintain sideslope integrity (minimize surface erosion and accelerated mass wasting) and a long term supply of large wood structure to "meter out" sediment to downstream reaches and to provide sources of large wood downstream during debris flow events.

Objectives: Activities should not accelerate sideslope surface erosion or mass wasting. Maintain some instream large wood structure over the long-term where important for downslope channel processes which require wood as a component of natural debris torrents (varies by option).

Description: High Gradient Contained channels are located on mountain slopes. These are singular straight incised channels with steep slopes and channel gradients greater than 6 percent. Stream flow is dependent upon mountain slope runoff and may be intermittent. Sediment is readily transported through these channels. Substrate material ranges from cobble to bedrock. Riparian area includes incised channel sideslopes. Hemlock series dominates vegetation although spruce is also common. Some streams have intermittent flows. Steep gradients (>6%) limit fish capability. Typical site-potential tree height is 120 feet.

Application of Riparian Options by Alternative

	Alts. 1,4,5,6,8	Alts. 2,7	Alt. 3	Alt. 9
Higher Value Watersheds	Option 2	Option 3	Option 1	TTRA/BMP
Other Areas	Option 3	Option 3	Option 2	TTRA/BMP

Stream Class/Activity	Option 1	Option 2	Option 3
I/Timber Harvest	Typically not present but if they should occur treat the same as Class II, Option 1, or this process group.	Typically not present but if they should occur treat the same as Class II, Option 2.	Typically not present but if they should occur treat the same as Class II, Option 3.
II/Timber Harvest (usually HC 1-4 & 8)	No programmed commercial timber harvest within the 100 feet of the stream or the top of the V-notch, whichever is greater, plus an additional distance of 120 feet (one site-potential tree height).	No programmed commercial timber harvest within 100 feet of the stream or to the top of the V-notch, whichever is greater. Programmed commercial harvest using only uneven-aged management techniques is allowed up to an additional 120 feet (one site-potential tree beyond the V-notch); design for windfirmness of the V-notch.	If Class II flows directly into a Class I, no commercial timber harvest within 100 feet of the stream channel. Beyond the no harvest zone, selectively leave trees with crowns that do not extend above the slope break. For streams which do not qualify for a 100 foot TTRA buffer, Selectively leave trees with crowns that do not extend above the slope break.

Stream Class/Activity	Option 1	Option 2	Option 3
III/Timber Harvest (usually HC 5,6 & 9)	<u>HC 6 and 9:</u> No programmed commercial timber harvest within the V-notch and within an additional 120 feet (one site-potential tree) beyond the V-notch. For 120 feet (one-site potential tree) beyond the no harvest zone, manage for windfirmness of the V-notch and adjacent stand. <u>HC 5:</u> No programmed commercial timber harvest within the V-notch and within an additional 60 feet (one-half site-potential tree) beyond the V-notch. Manage an additional 60 feet (one-half site-potential tree) beyond the no harvest zone for windfirmness of the V-notch and adjacent stand.	No programmed commercial timber harvest within the V-notch plus manage an additional 120 feet (one-site potential tree) beyond the V-notch for windfirmness of the V-notch. (It is anticipated that following site-specific analysis application of this guideline may be modified to be similar to Option 3 in 25% of the sites.)	Allow harvest to the stream bank while meeting objectives. (It is anticipated, following site specific analysis, this guideline may be modified to be similar to Option 2 in about 30% of the sites.)
I, II & III/Salvage	no salvage except to further riparian objectives	Same as option #1.	Allow salvage while meeting objectives.
I, II & III/Harvest Controls	Minimize yarding corridors within the riparian areas	Same as option #1.	Minimize soil disturbance associated with yarding within inner gorge. Full suspension is required to cross the stream channel. Harvest rate is not to exceed 25% of the acres (in this land use designation) every 20 years of a 3rd order or larger watershed.
I, II, & III/Roads, Borrow Pits, Drainage Structures	Borrow pits are generally not appropriate in HC channel process group. Road and road crossings should be designed and constructed to minimize soil runoff to the channel, retain natural drainage patterns and minimize changes to the natural rates of sediment transport.	Same as option #1.	Same as option #1.

Note: Except for the Standard "no commercial timber harvest requirement within 100 feet of Class I streams and Class II streams which flow directly into Class I's", the remaining guidelines may be modified. Modification of these guidelines may occur only on a site-specific basis following an analysis of pertinent issues and documentation of the findings.

Process Group: Alluvial Fan
(AF1, AF2 and AF8 channels)

Desired condition: Option 1 & 2: Provide for the long-term retention and recruitment of very large wood (near the maximize size that sites will grow) distributed across the entire alluvial fan. Option 3: Provide for long-term retention and recruitment of large wood (near the size of a site-potential tree) distributed on the active portion of the alluvial fan. (Note: streams move across the face of the entire fan over time; it is often difficult to predict from year to year where that stream will be located. For sediment retention and metering of sediment into stream systems, as well as to supply pool rearing habitat for fish, a supply of large wood is required. Large wood is often excavated by fluvial processes on the fan.)

Within the stream, meet the natural range of aquatic habitat features.

Objective: Manage for large wood by assessing the site's old-growth type and managing for at least the minimum size distribution for large-downed wood and standing trees. (reference Regional Old Growth Definition Book (R10-TP-28)). and fish habitat objectives for large wood.)

Description: Alluvial fan channels flow directly over the alluvial fan landform. These are dynamic multi-branched channels that periodically change course within the landform. Stream gradient ranges from 1 to 3 percent on the lower half of the alluvial fan and increases toward the fan apex. The AF channel is associated with HC channels therefore streamflow is dependent on mountain slope runoff. Groundwater discharge is also significant. Surface flow may be intermittent as substrate consists of sand to cobble size material. During low flow periods stream flow may run subsurface in the middle section of the alluvial fan and emerge on the lower section. Aggradation of material is the dominant process on the alluvial fan and fine sediment may be deposited in the low gradient section. Alluvial fans typically support large spruce with diameters (DBH) of 30" and have average site-potential tree heights of 140 feet. Downed wood serves as nurse logs for regeneration.

Application of Riparian Options by Alternative

	Alts.1,4,5,6,8	Alts. 2,7	Alt. 3	Alt. 9
Higher Value Watersheds	Option 2	Option 3	Option 1	TTRA/BMP
Other Areas	Option 3	Option 3	Option 2	TTRA/BMP

Stream Class/Activity	Option 1	Option 2	Option 3
I, II,/Timber Harvest	No programmed commercial harvest on the alluvial fan.	No programmed commercial harvest within the greater of the active portion of the alluvial fan or 140 feet (the height of one site-potential tree) from the current channel plus unevenaged management across the remainder of the alluvial fan with the objective of leaving large trees within the stand for future stream recruitment.	No commercial harvest within 100 feet of a Class I stream or a Class II flowing directly into a Class I. All harvest methods are available on remaining inactive portion of fan while meeting objectives.

Stream Class/Activity	Option 1	Option 2	Option 3
III/Timber Harvest	Same stream Class I.	Same as stream Class I.	No programmed commercial harvest within the active portion of the alluvial fan or 25 feet of streambank, whichever is greater. All harvest methods are available on remaining inactive portion of fan while meeting objectives.
I, II & III/Timber Salvage	Salvage should be designed to comply with the prescription requirements listed above.	Same as option #1.	Same as option #1.
I, II & III/Harvest Controls	Yard in a manner to minimize barring of mineral soil and such that new channelization does not occur across the entire alluvial fan. The objective is to minimize alder growth and formation of new channels (ref. BMP 13.9). Where trees are removed, utility/cull logs should be left distributed across the alluvial fan.	Same as option #1.	Same as option #1.
I, II & III/Roads, Borrow Pits, Drainage Structures	Discourage use as borrow sources. Do not allow borrow pits on active fan. Avoid crossing fans where possible. If required, use bridges or depending on protected use, hardened fords, near fan apex. If culverts are used, consider as temporary structures (design for 25 year event). The objective is to maintain fish migration where needed and avoid diverting stream channels.	Same as option #1.	Same as option #1.

Note: Except for the Standard "no commercial timber harvest requirement within 100 feet of Class I streams and Class II streams which flow directly into Class I's", the remaining guidelines may be modified. Modification of these guidelines may occur only on a site-specific basis following an analysis of pertinent issues and documentation of the findings.

Process Group: Floodplain/Glacial Outwash
(FP1, FP2, FP3, FP4, FP5, GO1, GO2, GO3 channel types)

Desired condition: Provide for the retention and recruitment of large wood over the long term, distributed across the floodplain. Maintain natural floodplain function: flood mitigation, surface-groundwater exchange, water temperature moderation and off-channel habitat. In the stream channel meet the natural range of aquatic habitat features (large wood size and distribution, pool size and frequency, spawning gravel quality and channel morphometry).

Objective: Manage for large wood by assessing the site's old-growth type and managing for at least the minimum size distribution for large downed wood and standing trees (OGD). Meet fish habitat objectives (AFHA). Maintain natural surface drainage pattern. Maintain fish access to entire range of habitat.

Description: Flood Plain and Glacial Outwash channels are associated with the valley bottom flood plain landform. These two process groups contain low gradient sinuous singular or anabranching channels. Braided channels are more prevalent in the Glacial Outwash process group. Mountain slope runoff and ground water discharge control stream flow in the FP group while glacial melt controls flow in the GO group. Peak flows may occur in the spring and fall in the FP group while in summer for the GO group. Sediment deposition is the dominant process in both groups. Substrate material ranges from sand to cobble size material in both groups.

Floodplains support standing old growth spruce with heights of up to 130 feet. Downed wood provides nurse logs for regeneration, sediment retention, and infiltration. Floodplain width may exceed 200 feet on FP4 and FP5 channels, but are generally less than 200 feet on FP3 channels. These areas are typically highly productive for fish. Large wood and off channel rearing areas are of particular significance as habitat features.

Application of Riparian Options by Alternative

	Alts.1,4,5,6,8	Alts. 2,7	Alt. 3	Alt. 9
Higher Value Watersheds	Option 2	Option 3	Option 1	TTRA/BMP
Other Areas	Option 3	Option 3	Option 2	TTRA/BMP

Stream Class/Activity	Option 1	Option 2	Option 3
I/Timber Harvest (excluding FP3s not associated with other floodplain channel types)	No programmed commercial harvest in the riparian management area (greatest of floodplain, riparian vegetation or soils, riparian associated wetland fens, or 130 feet (the height of one site-potential tree)). Only unevenaged management is allowed for an additional 130 feet (the height of one site-potential tree) beyond the no harvest zone.	Same as option #1.	No commercial harvest within 100 feet of the stream. Allow no programmed commercial timber harvest within an additional 100 feet in width on each side of the stream. If the riparian extends beyond 200 feet from the stream channel, consider all harvest methods on a case-by-case basis.

Stream Class/Activity	Option 1	Option 2	Option 3
FP3 (not associated with other floodplain channel types)/Timber Harvest	Same as above.	Same as above.	Allow single tree selection harvest within an additional 100 feet beyond the no harvest zone.
II/Timber Harvest	Same as for this option, Class I.	Same as for this option, Class I.	Typically not present. For streams which do not flow directly into a Class I, use the same guidance as the Alluvial fan process group class II.
III/Timber Harvest	Typically not present. Use the same guidance as Class I for this Option	Typically not present. Use the same guidance as Class I for this Option.	Typically not present. Use the same guidance as found in Alluvial fan process group class III.
I, II & III/Harvest Controls	Yard in a manner to minimize baring of mineral soil (<1%) and such that new channelization does not occur across the floodplain. The objective is to minimize alder growth and formation of new channels (BMP 13.9).	Same as Option 1.	Where harvest occurs within the floodplain but beyond 100 feet from the stream, strive to maintain 90% of the normal basal area with trees 16"+ dbh within areas with no programmed commercial timber harvest. Where trees are removed utility/cull logs should be distributed across the floodplain.
I, II & III/Timber Salvage	No harvest allowed.	Allow in the height of the 2nd site-potential tree area, while meeting objectives. Otherwise not allowed.	Not allowed where programmed commercial harvest is not allowed unless needed to meet process group objectives (e.g. windthrown trees restricting fish passage in streams.) Allow in other areas while meeting objectives.
I, II & III/Roads, Borrow Pits, Drainage Structures	Locate roads only when other feasible routes do not exist (BMP 14.2). Develop stream course protection plans when stream crossings are necessary. Do not develop borrow pits within the active flood plain (BMP 14.9). The objective is to maintain fish migration where needed and avoid diverting surface drainage channels.	Same as option 1.	Same as option 1.

Note: Except for the Standard "no commercial timber harvest requirement within 100 feet of Class I streams and Class II streams which flow directly into Class I's", the remaining guidelines may be modified. Modification of these guidelines may occur only on a site-specific basis following an analysis of pertinent issues and documentation of the findings.

Process Group: Large Contained
(LC1 and LC2 channels)

Desired condition: Provide for retention and recruitment of large wood to the stream channel, and riparian vegetation for maintaining stable channel sideslopes, shade and organic inputs.

In the stream, meet the natural range of aquatic habitat features for large wood size and distribution and pool size and frequency.

Objectives: No increase in sideslope surface erosion or mass wasting. Meet fish habitat objectives for large wood and pools.

Description: Large Contained channels are associated with canyons or sloping lowlands. These are low gradient (less than 3 percent), singular, straight and entrenched channels with gravel to bedrock substrate. Sediment regime balances input with output. Stream flow is dependent upon mountain slope or lowland runoff.

Riparian area includes incised channel sideslopes and terraced alluvial floodplain. Habitat is often limited by a scarcity of stable large wood structures. Riparian vegetation communities are varied. Riparian width, including floodplain and sideslope breaks reach 150' (LC1) to 190' (LC2). A site potential tree reaches an average height of 100 feet.

Application of Riparian Options by Alternative

	Alts. 1,4,5,6,8	Alts. 2,7	Alt. 3	Alt. 9
Higher Value Watersheds	Option 2	Option 3	Option 1	TTRA/BMP
Other Areas	Option 3	Option 3	Option 2	TTRA/BMP

Stream Class/Activity	Option 1	Option 2	Option 3
I and II's which flow directly into I's/Timber Harvest	No programmed harvest on channel sideslope break plus an additional 100 feet (one site-potential tree height) beyond the slope break. Manage an additional 100 feet (site-potential tree height) beyond the no harvest zone to reduce the risk of windthrow, where appropriate	No programmed harvest on channel sideslope break. Manage an additional 100 feet (site-potential tree height) beyond the no harvest zone (gorge) to reduce risk of windthrow, where appropriate.	No commercial timber harvest within 100 feet of the stream.
other II's/Timber Harvest	Extremely rare. If they should occur, treat as the corresponding stream class in the HC process group.	Same as option #1.	Allow no programmed commercial timber harvest within 25 feet of stream.
III/Timber Harvest	Same as "other II's".	Same as "other II's".	Extremely rare. If they should occur, treat same as Moderate Gradient Contained Process Group, Class III.

Stream Class/Activity	Option 1	Option 2	Option 3
I & II/Timber Salvage	Allow no salvage in the areas identified for no programmed harvest in the Class I, Option 1 guidance.	Allow no salvage in the areas identified for no programmed harvest in the Class I, Option 2 guidance.	Allow salvage while meeting objectives for the process group.
I & II/Harvest Controls	Fully suspend trees over the bankfull stream when yarding. Minimize yarding corridors within the riparian area. Yard in a manner to assure no delivery of sediment from channel sideslopes.	Same as Option 1.	Same as Option 1.
I, II & III/Roads, Borrow Pits, Drainage Structures	Generally not appropriate in this process group. Where road crossings are required, minimize erosion and sedimentation associated with road crossing approaches within inner gorge. Fish migration should not be impeded by road crossings.	Same as option #1.	Same as option #1.

Note: Except for the Standard "no commercial timber harvest requirement within 100 feet of Class I streams and Class II streams which flow directly into Class I's", the remaining guidelines may be modified. Modification of these guidelines may occur only on a site-specific basis following an analysis of pertinent issues and documentation of the findings.

Process Group: Moderate Gradient Contained
(MC1, MC2 and MC3 channels)

Desired condition: Provide for retention and recruitment of large wood to the stream channel, and riparian vegetation for maintaining stable channel sideslopes, shade and organic inputs.

In the stream, meet the natural range of aquatic habitat features for large wood size and distribution and pool size and frequency.

Objectives: No increase in sideslope surface erosion or mass wasting. Meet fish habitat objectives for large wood and pools.

Description: Moderate Gradient Contained channels are associated with sloping or rolling lowlands. Stream gradient ranges from 2 to 6 percent for these singular, straight and entrenched channels. Stream flow is dependent upon mountain slope runoff. Sediment is transported through these channels. Substrate is dominated by cobble, boulder and bedrock material.

Riparian area includes incised channel sideslopes and terraced alluvial floodplain. Habitat is often limited by stable large wood structures. Riparian vegetation communities are varied. Riparian width, including floodplain and sideslope breaks reach 60' to 70'. A site potential tree height is 100 feet.

Application of Riparian Options by Alternative

	Alts.1,4,5,6,8	Alts. 2,7	Alt. 3	Alt. 9
Higher Value Watersheds	Option 2	Option 3	Option 1	TTRA/BMP
Other Areas	Option 3	Option 3	Option 2	TTRA/BMP

Stream Class/Activity	Option 1	Option 2	Option 3
I and II's which flow directly into I's/Timber Harvest	MC1,MC2 and MC3 No programmed harvest on channel sideslope break plus an additional 100 feet (one site-potential tree height) beyond slope break. Manage an additional 100 feet (site-potential tree height) beyond the no harvest zone to reduce risk of windthrow, where appropriate.	MC1 No programmed harvest for the channel sideslopes plus an additional 100 feet (one site-potential tree height). MC2 and MC3 No programmed harvest within channel sideslope break. Manage an additional 100 feet (one site-potential tree height) beyond the no harvest zone (gorge) to reduce risk of windthrow, where appropriate.	Allow no commercial timber harvest within 100 feet of the stream. Beyond 100 feet, selectively leave trees with crowns that do not extend above the slope break.
other II's/Timber Harvest	Same as option #1 for Stream Class I	MC1 No harvest within 100'. MC2 and MC3 No harvest within 100' or on sideslopes whichever is greater.	Selectively leave trees with crowns that do not extend above the slope break.
III/Timber Harvest	Unusual, treat like HC process group class III.	Same as option 1.	All harvest methods are available while meeting objectives.

Stream Class/Activity	Option 1	Option 2	Option 3
I, II & III/Timber Salvage	Allow no salvage in the areas identified for no programmed harvest in the Class I, Option 1 guidance.	Allow no salvage in the areas identified for no programmed harvest in the Class I, Option 2 guidance.	Allow salvage while meeting objectives.
I, II & III/Harvest Controls	Fully suspend trees over the bankfull stream when yarding. Minimize yarding corridors within the riparian area. Yard in a manner to minimize delivery of sediment from channel sideslopes.	Same as Option 1.	Minimize soil disturbance associated with yarding within the inner gorge.
I, II & III/Roads, Borrow Pits, Drainage Structures	Where road crossings are required, minimize erosion and sedimentation associated with road crossing approaches within inner gorge. Fish migration should not be impeded by road crossings.	Same as option #1.	Same as option #1.

Note: Except for the Standard "no commercial timber harvest requirement within 100 feet of Class I streams and Class II streams which flow directly into Class I's", the remaining guidelines may be modified. Modification of these guidelines may occur only on a site-specific basis following an analysis of pertinent issues and documentation of the findings.

Process Group: Palustrine
(PA1,PA2, PA3, PA4 and PA5 channels)

Desired condition: Maintain habitat diversity for rearing salmonids, canopy shading, organic recruitment for food and cover.

Objectives: Maintain streambank structure. Meet fish habitat objectives for width to depth ratios. Maintain recruitment of large wood for cover habitat. Meet fish habitat objectives for large woody debris and undercut banks.

Description: Palustrine channels are associated with lowland landforms and wetlands. Channel gradients are less than 1 percent. Palustrine channels are singular and sinuous. Stream flow is dependent on peatland and lowland runoff. Sediment storage is the dominant process. Substrate material ranges from fine organic material to coarse gravel.

Riparian vegetation includes mixed conifer, shore pine, and non-forest. Site-potential tree height is generally less than 85'.

Application of Riparian Options by Alternative

	Alts.1,4,5,6,8	Alts. 2,7	Alt. 3	Alt. 9
Higher Value Watersheds	Option 2	Option 3	Option 1	TTRA/BMP
Other Areas	Option 3	Option 3	Option 2	TTRA/BMP

Stream Class/Activity	Option 1	Option 2	Option 3
I & II/Timber Harvest	No programmed commercial harvest in the riparian area (greatest of floodplain, riparian vegetation or soils or riparian associated wetland fens). Only unevenaged management is allowed for an additional 100 feet (one site-potential tree height) beyond the no harvest zone.	Same as option #1	Allow no commercial timber harvest within 100 feet of the stream channel or within the riparian management area (greatest of floodplain, riparian vegetation, or soils, riparian associated wetland fens or one site potential tree).
III/Timber Harvest	These stream classes do not normally occur in this process group. If either should occur, treat as Moderate Gradient Contained process group.	Same as option #1.	All harvest methods are available while meeting objectives.
I, II & III/Timber Salvage	Allow no salvage in the areas identified for no programmed harvest in the Class I, Option 1 guidance.	Allow no salvage in the areas identified for no programmed harvest in the Class I, Option 2 guidance.	Allow no salvage in the areas identified for no programmed harvest in the Class I, Option 3 guidance.

Stream Class/Activity	Option 1	Option 2	Option 3
I, II & III/Harvest Controls	Fully suspend trees over the bankfull stream when yarding. Minimize yarding corridors within the riparian area. Yard in a manner to minimize delivery of sediment from channel sideslopes. Use wetland guidelines	Same as option 1.	Same as option 1.
I, II & III/Roads, Borrow Pits, Drainage Structures	Wetland functions and fish passage receive special attention in locating roads.	Same as option 1.	Same as option 1.

Note: Except for the Standard "no commercial timber harvest requirement within 100 feet of Class I streams and Class II streams which flow directly into Class I's", the remaining guidelines may be modified. Modification of these guidelines may occur only on a site-specific basis following an analysis of pertinent issues and documentation of the findings.

RURAL DEVELOPMENT

Forest-wide Standards & Guidelines

Rural Development Activities: RD

I. Consider Rural Development in Resource Management Decisions

- A. Forest programs and budgets should consider where resources could be redirected to respond to local needs and opportunities for rural development.
 - 1. Consider rural interests, including state, Native corporations, and others, in resource decisions by jointly identifying and developing natural resource opportunities including those on private land.
- B. Consider social, cultural, and economic issues in resource management decisions by:
 - 1. Considering local communities' needs in project plans.
 - 2. Evaluating community-based sources of goods and services needed to plan, design, and implement Forest projects.
 - 3. Forming networks of partners in communication and cooperation to further provide for rural development in Alaska.
 - 4. Considering community organization and protocol in resource planning and decision processes.
 - 5. Providing information and sharing decisions pertaining to resource management and development on national forests with communities. Providing opportunities for Forest Service employees to participate in local rural development planning.

II. Community-based Rural Development Plans incorporate Forest Service Resource Activities

- A. Provide information about Forest management and rural development opportunities during community planning activities.
 - 1. Provide local planners with national and local updates on Rural Development programs and opportunities.
 - 2. Provide training opportunities to local resource planners and managers as well as Forest Service employees to develop a common understanding of the role of Forest resources in rural development.
 - 3. Develop and provide timely research information, technology, and project coordination to enhance rural economic development.

SCENERY

Forest-wide Standards & Guidelines

Scenery Operations: VIS1

I. Scenery Management

- A. This plan adopts Visual Quality Objectives (VQO's) which provide direction and objectives for landscapes within each Land Use Designation. The long-term desired future visual condition for a specific area is the maintenance of a visual quality level that is at least as high as the adopted VQO for that area. Adopted VQO's are described in the scenery section of each Land Use Prescription.
- B. Perform landscape/viewshed analysis, using as much of the available tools and technology as possible, when planning projects within viewsheds seen from Visual Priority Travel Routes and Use Areas (VPRs). Some level of analysis may be appropriate in some areas involving non-priority use areas. More comprehensive viewshed analysis such as long term, full corridor planning may be necessary in the most sensitive viewsheds. See Appendix F of this Plan for a listing of the designated VPRs. As a part of the planning for major land-disturbing activities, consider whether changes to the VPR list is necessary.
- C. Consider the visual condition of adjacent non-National Forest lands during the planning of development activities on the National Forest.
- D. Consult the National Forest Landscape Management Handbooks series (nos. 434, 462, 478, 483, 484, 559, 608, 617, 666) and R10 Forest Service Handbook 2309.22 for scenery management guidance.

Scenery Preparation: VIS11

I. Visual Quality Objectives (VQO's): APPLICATION

VQOs are applied to any activity which has the potential to affect the visual character of the landscape. Activities could include, but are not limited to: recreation facilities: trails, cabins, restrooms, interpretive displays; timber sales: roads, harvest units, logging camps, sort yards, log transfer facilities; fish enhancement projects: in-stream fish pass structures, gabions; special use permits: electronic facilities, hydroelectric projects, etc. In designing activities to meet specific VQOs, a number of factors must be considered. Some of these factors are:

- A. The landscape's Existing Visual Condition (EVC) rating. This is an inventoried condition which rates the degree of change that has already occurred on-the-ground. It is important to compare the EVC of the project area to the VQOs assigned by the Forest Plan. Should there be conflicting conditions presently existing and the intent of the LUD is not presently met, it would be appropriate to consider either 1) some specific rehabilitation measures or 2) project deferral which would allow the landscapes in the project area time to regenerate sufficiently.
- B. Visual Absorption Capability (VAC) which is an estimate of the relative ability of a landscape to absorb management activities. High, Intermediate and Low VAC ratings are used. These ratings reflect the degree of landscape variety in an area, viewing distance, and topographic characteristics. As examples, a Low VAC setting generally has steep slopes, with little landscape variety, while a High VAC setting maybe relatively flat and/or has a high degree of variety in the landscape.
- C. Size, shape, orientation to viewer, color, texture, etc. which are critical elements in determining whether or not an activity meets the assigned VQO. Consideration for the scenery is essential early on in the planning process, particularly in areas seen from a

VPR. However, each landscape setting is different, and should be evaluated on a case-by-case basis. There may be instances where the VQO can be met while the proposed activity is greater than the guideline, or there also maybe cases where the activity must be smaller to meet the intent of the VQO.

- D. The timber sale harvest treatment specified which should reflect the desired future condition for the area of concern, as well as the visual objective to be achieved.
- E. Depending on the assigned VQO, specific time frames are allowed for meeting the VQO following project completion. Long-term projects (ie: those with no specific completion date) should be initially designed to meet the assigned VQO as the project progresses.

II. Visual Quality Objectives (VQOs): SPECIFIC GUIDELINES

- A. *VQO Retention*: Design activities to not be visually evident to the casual observer. This objective should be accomplished within six months following project completion.

- 1. *Facilities.*

- * Keep vegetation clearing to a minimum and within close proximity of the site.
- * Select materials and colors which blend with those found in the natural surroundings.
- * Screening should be used from viewpoints and travel routes if feasible.

- 2. *Transportation.*

- * *Rock Sources.* When a forest development road is a Visual Priority Route, locate rock sources off the road when possible. Spur road access may be necessary to minimize the visual impact. Rock source development should not be apparent from the road or marine travel route to meet this visual objective.
- * *Corridor Treatment.* Provide for roadside cleanup of ground-disturbing activities. Depending on site conditions, cut stumps as low as possible and angled away from the viewer. Incorporate this treatment in the timber sale contract.
- * *Log Transfer Facilities (LTF's).* LTF's are generally not appropriate in this VQO setting.

- 3. *VAC Setting, Typical Regeneration Method and Unit Size*

- Low : Single tree or group selection (less than 2 acres)

- Intermediate : Single tree or clearcut (approx. 5 - 15 acres)

- High : Clearcut (approx. 15 - 30 acres)

- B. *VQO Partial Retention*: Design activities to be subordinate to the landscape character of the area. This VQO should be accomplished within one year of project completion.

- 1. *Facilities.*

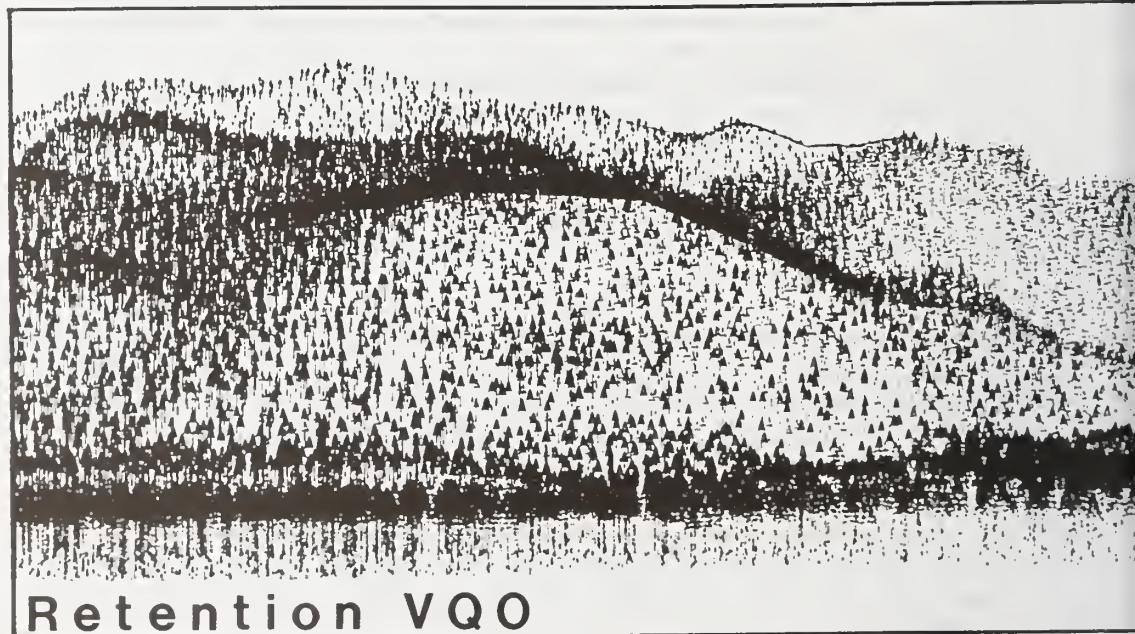
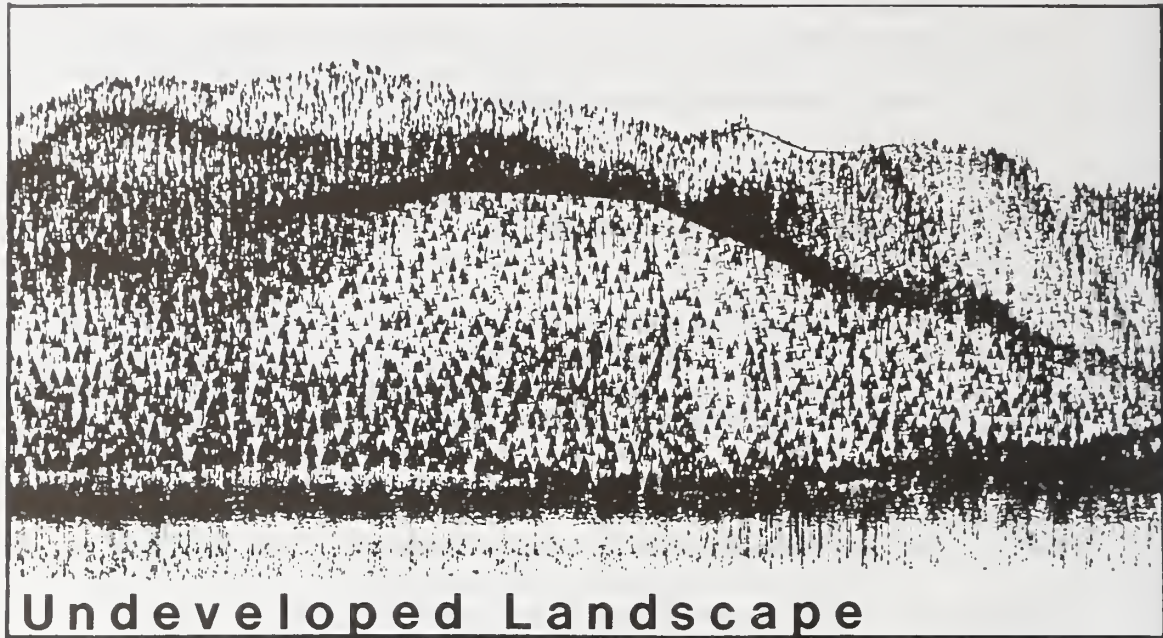
- * Keep vegetation clearing to a minimum and within close proximity of the site.
- * Emphasize enhancement of views from recreational facilities.
- * Select materials and colors which blend with those found in the natural surroundings.

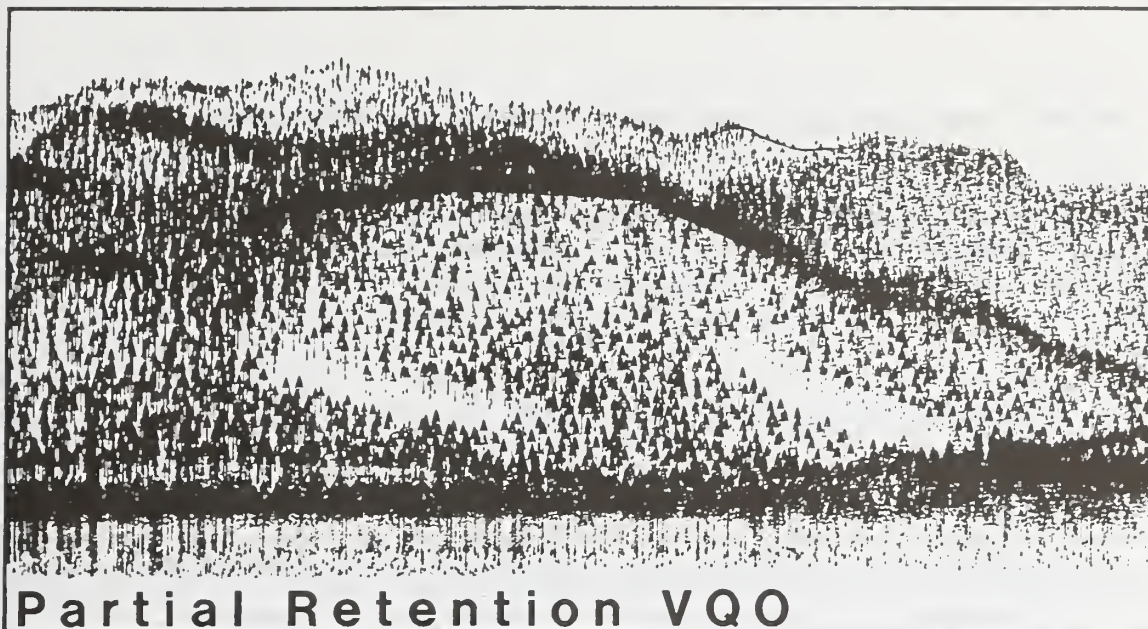
- 2. *Transportation.*

- * Design rock sources to be minimally apparent as seen from Visual Priority Travel Routes and Use Areas. Rehabilitation is usually necessary following closure of rock source developments. It may be necessary to modify some ground-disturbing activities seen from the foreground of Visual Priority Travel Routes and Use Areas.
- * *Corridor Treatment.* Roadside cleanup of ground disturbance activities may be necessary.
- * *LTF's (temporary or permanent).* Perform a visual quality analysis during LTF planning and design. Consider low profile designs to minimize visibility from Visual Priority Travel Routes and Use Areas. For temporary LTF's, incorporate rehabilitation measures into the project analysis and the contract package.

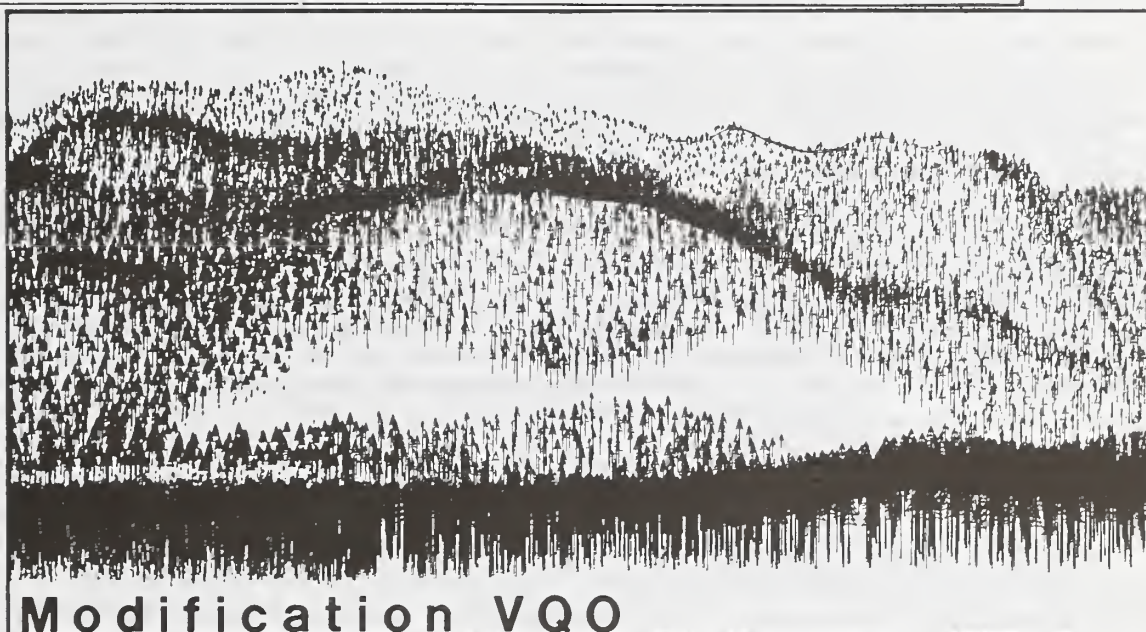
3. *VAC Setting, Typical Regeneration Method and Unit Size*
 Low : Group selection or clearcut (approx. 5-10 acres)
 Intermediate : Clearcut (approx. 15 - 40 acres)
 High : Clearcut (approx. 40 - 60 acres)
- C. *VQO Modification:* Activities may visually dominate the characteristic landscape, but must have visual characteristics similar to those of natural occurrences within the surrounding area or character type. This VQO should be met within one year in the foreground distance zone and within five years in the middle and background distance zones following project completion.
 1. When planning activities, use naturally established form, line, color and texture found in the landscape.
 2. *Facilities.* Siting and design should borrow from naturally occurring patterns in the landscape, and should not be visually dominant when viewed in the background distance zone.
 3. *Transportation.*
 - * Rock source operations and resulting landform modifications may be evident to the casual observer as seen from Visual Priority Travel Routes and Use Areas. However, the quarry location and design should mitigate, to the extent feasible, the apparent visual size and dominance of the activity (for example, shaping of backwalls, roadside screening and general orientation of the opening).
 - * *LTF's (temporary or permanent).* Perform a visual quality analysis during LTF planning and design.
 4. *VAC Setting, Typical Regeneration Method and Unit Size*
 Low : Clearcut (approx. 15 - 40 acres)
 Intermediate : Clearcut (approx. 40 - 60 acres)
 High : Clearcut (approx. 80 - 100 acres)
- D. *VQO Maximum Modification:* Activities may dominate the characteristic landscape, yet when viewed as background, should appear to be a natural occurrence.
 1. Locate and design management activities to take advantage of existing (both natural and imposed) pattern and texture found in the landscape when viewed in the middleground from Visual Priority Travel Routes and Use Areas.
 2. Design activities to resemble natural occurrences as viewed in the background distance zone.
 3. *VAC Setting, Typical Regeneration Method and Unit Size*
 Low : Clearcut (approx. 50 - 75 acres)
 Intermediate : Clearcut (approx. 80 - 100 acres)
 High : Clearcut (approx. 80 - 100 acres)

E. The following are graphic illustrations of timber harvest activities designed to meet each Visual Quality Objective. The undeveloped landscape is provided for comparative purposes.





Partial Retention VQO



Modification VQO



Maximum Modification VQO

Adopted Visual Quality Objectives (VQO) for each Land Use Designation¹

Land Use Designation	Foreground	Middleground	Background	Not Seen or Non-priority
Wilderness Wilderness Nat. Monument Research Natural Area Special Interest Area ^{2 4} Remote Recreation Old-growth Habitat ⁴ LUD II ⁴	Retention	Retention	Retention	Retention
Special Interest Area ^{3 4}	Modification	Partial Retention	Partial Retention	Not Applicable
Semi-remote Recreation ⁴	Partial Retention	Partial Retention	Partial Retention	Partial Retention
Wild River ⁶	Retention	Retention	Retention	Retention
Scenic River ^{4 6}	Retention	Partial Retention	Partial Retention	Modification
Recreational River ^{4 6}	Partial Retention	Modification/Partial Retention ⁷	Modification/Partial Retention ⁷	Maximum Modification
Scenic Viewshed ⁴	Retention	Partial Retention	Partial Retention	Maximum Modification
Modified Landscape ⁴	Partial Retention	Modification	Modification	Maximum Modification
Timber Production Minerals Experimental Forest ⁶	Modification	Maximum Modification	Maximum Modification	Maximum Modification
Transp. & Utility System ⁶	Modification	Not applicable	Not applicable	Not applicable
Enacted Municipal Watershed	A range of visual conditions may exist in the watershed, which are a result of the municipality's watershed management objectives. Visual impacts should be minimized as seen from Visual Priority Travel Routes and Use Areas.			
Non-wild. Nat. Monument	Visual Quality Objectives will range from Retention, in those portions of the Monument without access, to Maximum Modification in those portions developed in connection with mineral activities. Site-specific VQO's will be identified in the specific plan of operation for mineral development.			

¹ The foreground, middleground, and background Visual Quality Objectives are adopted as seen from the Visual Priority Travel Routes and Use Areas (Appendix F). Non-priority travel routes and use areas, and those areas not seen from the Visual Priority Routes and Use Areas, are managed according to the direction listed in the "Not Seen or Non-priority" column.

² Except for the developed recreation and interpretive portions of Special Interest Areas such as Mendenhall Glacier, Ward Cove, and Blind Slough.

³ Applies only to the developed recreation and interpretive portions of Special Interest Areas such as Mendenhall Glacier, Ward Cove, and Blind Slough. Undeveloped areas are managed according to the guidance on the previous line.

⁴ Exceptions for small areas of non-conforming developments, such as recreational developments, transportation developments, log transfer facilities, and mining development, may be considered in these Land Use Designations on a case-by-case basis.

⁶ The Visual Quality Objective may vary depending on the research objectives of the Experimental Forest.

⁶ These objectives apply only to the actual corridor. The area adjacent to this LUD is managed according to the guidelines of the adjacent Land Use Designation.

⁷ Apply the Partial Retention VQO in corridors where scenic quality is included as one of the "outstandingly remarkable" values for that corridor. If it is not, apply the lower VQO.

III. Visual Quality Objectives - Harvest Methods Other Than Clearcutting

The guidelines described previously are based on several analyses of harvested viewsheds throughout the Tongass that represented different VAC characteristics and different levels and scales of harvest. Similar specific guidelines for other types of silvicultural treatments cannot be provided due to the lack of experience with these treatments. However, the following paragraphs provide some general guidelines concerning the use of harvest methods other than clearcutting.

A. Clearcut With Percentage of Stand Left As Legacy Trees. Based on a few observations of some recent treatments of this type it would appear that if approximately 20%-40% of the trees within a clearcut area are retained, the size of a clearcut might be increased anywhere from 10-30% and still meet the same VQO. Also it may be possible to meet a higher VQO by leaving an appreciable percentage of legacy trees within a clearcut. However many factors such as natural vegetative patterns, steepness and obliqueness of slope, and viewing distance play an important role in determining how to apply this technique in a specific landscape.

B. Uneven-aged management - single-tree or group selection. Meeting a retention or partial retention VQO in a low VAC setting requires a relatively small percentage of stems removed on a *single-tree basis* - anywhere from 5 to 20%. The exact amount cannot be stated since a lot depends on the slopes, viewing distances, and natural characteristics of the stand. To meet a modification VQO, it is possible that a larger percentage could be removed. Exactly how much and what the limit would be is also based on the existing landscape characteristics. When utilizing a *group selection method*, the appropriate size and distribution of the groups are heavily dependent on the VQO, and particularly the natural landscape characteristics such as the size and distribution of natural openings. From observations of the few examples available of this type of treatment, the design of the groups should replicate natural openings and avoid the use of regular circular or square patterns. The initial uses of these harvest techniques will have to be experimental in nature, employ a variety of harvest intensities and designs, and be followed by careful monitoring.

Scenery Administration: VIS12

I. Mitigation, Enhancement and Monitoring.

- A. Minimize potential visual impacts through scheduling or timing of management activities so that they are dispersed and not concentrated, subject to considerations given to other resources (e.g. wildlife).
- B. Rehabilitate, where feasible, existing projects and areas which do not meet the Adopted Visual Quality Objectives. Consider the following in setting priorities:
 1. Relative importance of the area (public sensitivity).
 2. Projected length of time to naturally attain the Adopted VQO in comparison to the use of rehabilitation techniques. Examples of rehabilitation include: seeding road cuts, removing roadside slash and debris, re-shaping harvest unit boundaries, cutting roadside stumps as low as possible, shaping or spreading excess overburden, etc.
 3. Benefits to other resources by accomplishing rehabilitation.
- C. Use enhancement measures, where feasible, to create variety where little variety now exists through addition, subtraction, or alteration of vegetation, earthforms, waterforms, etc. Examples include: opening up vistas or screening out undesirable views and planting of species to give unique form, color or texture to an area.
- D. Consult the Landscape Management Handbook, Region 10, to determine project level monitoring.

1. Identify and document specific areas to be monitored.

II. *National Forest Scenic Byways*

- A. Manage National Forest Scenic Byways in keeping with program goals.
 1. Showcase outstanding National Forest scenery.
 2. Increase the public's understanding of the National Forests as the major provider of outdoor recreation.
 3. Acknowledge and emphasize the role of marine recreation and transportation networks in Southeast Alaska.
 4. Increase public awareness and understanding of all National Forest activities.
 5. Meet the growing demand of driving for pleasure as a significant recreation use.
 6. Increase the use of National Forests by non-traditional users including urban minorities, the disadvantaged and the elderly.
 7. Contribute to the Nation's overall Scenic Byways effort.
- B. A National Forest Scenic Byway focuses attention on a significant travel route. Manage these NF Scenic Byways consistent with the emphasis of the designated Land Use Designation. A Scenic Byway may be comprised of Land Use Designations of differing emphasis.
 1. Show the forest user the concept of a "working forest" with a variety of visual conditions consistent with the designated Land Use Designations.
- C. Coordinate federal nominations with the State of Alaska, Department of Transportation's Scenic Travel Enhancement Program (STEP).

III. *New Scenery Management System*

- A. By early 1996, the development of the new Scenery Management System will be complete, and a final new manual will be available for use by all National Forests. This new system has been developed to 1) incorporate into one manual the analysis tools that have evolved over the past two decades since the inception of the basic system; 2) redefine and clarify some terms; 3) revise some of the inventory processes; 4) provide a stronger link with ecosystem management; and, 5) provide more graphic examples of all the system's concepts as they apply to the various landscape types throughout the nation.
- B. Utilize the new Scenery Management System and begin inventory to be completed on a schedule allowing for incorporation into the next Forest Plan Revision.

SOIL AND WATER

Forest-wide Standards & Guidelines

Soil Inventory: S&W1111

I. Inventory

- A. Maintain the Soil Resource Inventory (SRI) or Integrated Resource Inventory (IRI). (Consult FSM 2550, Soil Management Handbook, Ecological Classification and Inventory Handbook (FSH 2090.11-91-1), National Soil Handbook-430-VI, Soil Survey Manual-430-V.)
 - 1. Determine and implement the level of Soil Resource Inventory (SRI) or Integrated Resource Inventory (IRI) necessary to meet planning and implementation needs for proposed management projects.
- B. Use the National Hierarchical Framework of Ecological Units (Terrestrial ECOMAP) to inventory and classify ecosystems.

Water Inventory: S&W1112

I. Inventory and Evaluation

- A. In conducting water investigations, consider and evaluate the following elements in Water Resource Inventories (WRI).
 - * Climate
 - * Water Quality
 - * Water Quantity
 - * Channel Types
 - * Water Uses and Developments
 - * Watershed Condition
- B. Consult FSM 2530, Water Resource Inventory Handbook (5/83 R-10 Supp 1) and Water Information Management System Handbook (FSH 2509.17).
 - 1. Determine the level of Water Resource Inventory (WRI) to meet project planning and implementation needs.
 - 2. Use the National Hierarchical Framework of Ecological Units (Aquatic ECOMAP) to inventory and classify watersheds, streams, lakes, and groundwater systems.

Watershed Resources Planning: S&W112

I. Land Use Activities

- A. Plan and conduct land use activities to avoid irreversible or serious and adverse effects on soil and water resources.
 - 1. Include soil and water resource data and interpretations in project analyses. (Consult FSM 2530 and 2550.)
 - 2. Maintain water quality and quantity to protect the state-designated beneficial uses. Consult the Alaska Nonpoint Source Pollution Control Strategy, the Soil and Water Conservation Handbook (Chapter 10, FSH 2509.22), the Soil Management Handbook (FSH 2509.18), and the "Forest Service Alaska Regional Water Quality Management Plan" addressed in the Memorandum of Agreement dated April 6, 1992 (as amended) with the Alaska Department of Environmental Conservation.
 - 3. Apply Best Management Practices (BMPs) to all land-disturbing activities as a process to protect the beneficial uses of water from nonpoint sources of pollution. (Note: Appendix C of the Plan includes a summary of the BMPs which are found in the

Soil and Water Conservation Handbook, Chapter 10, FSH 2509.22.) Also consult FSM 2530, Forest-wide Standards and Guidelines for Facilities, Transportation, and Fish, U.S. Army Corps of Engineer Regulations (33 CFR 323.4), and the Clean Water Act.

4. Apply soil conservation practices to meet regional Soil Quality Standards (SQS) on all land-disturbing activities as a process to prevent detrimental-soil disturbance. Detrimental soil disturbance is defined as significant changes or impairment in soil properties that are expected to result in reduced short or long-term productivity of the land. (Consult FSM 2520 and 2550, FSH 2509.18 and R10 Supplement to FSM 2554 #2500-92-1, effective Jan. 15, 1992 (as amended)). BMPs also include some soil conservation practices (Soil and Water Conservation Handbook, Chapter 10, FSH 2509.22); develop other specific soil conservation practices during project planning, as needed.
 5. Evaluate soil stability and potential soil mass wasting effects. At the forest plan level, slope gradients of 72% or more are removed from the tentatively suitable timber base due to high risk of soil mass movement. At the project planning level, the Forest Supervisor or District Ranger may approve timber harvest on slopes of 72% or more on a case-by-case basis, based on the results of an on-site analysis of slope stability and an assessment of potential impacts of accelerated mass wasting on downslope and downstream beneficial uses of water and other resources.
 6. Avoid locating a road on a slope greater than 67%, on an unstable slope, or in a slide-prone area, where feasible.
 7. Where slopes have a grade greater than 67%, are unstable, or are in a slide-prone area, fill material used in construction of a landing must be free from loose stumps and excessive accumulations of slash, and must be mechanically compacted in layers if necessary to prevent soil erosion and mass wasting.
 8. Soil Map Units (SMUs) with 41% or less McGilvery soil meet the criteria for tentatively suitable forest land, but require harvest systems capable of at least partial suspension over the entire length of the yarding distance. SMUs with more than 41% McGilvery soil are removed from the tentatively suitable timber base at the Forest Plan level, but may be considered for harvest on a case-by-case basis.
- B. Secure "favorable conditions of water flows" (Organic Administration Act of 1897). Maintain water quality consistent with Alaska Water Quality Standards for water supply (18 AAC 70) and Alaska Drinking Water Regulations for source water protection (18 AAC 80.015(a)). Avoid management activities which are likely to pollute a known public water system or violate Alaska Water Quality Standards. Conduct watershed analysis and consult with the Alaska Department of Environmental Conservation before authorizing management activities that create or maintain a condition that has a significant potential to cause the pollution or contamination of a public water system.
1. For enacted municipal watersheds, refer to the Enacted Municipal Watershed Land Use Designation and the authorizing legislation or Executive Order that created each enacted municipal watershed.
 2. For non-enacted municipal watersheds, cooperate with municipalities to meet municipal watershed protection needs on a case-by-case basis. Develop written agreements with municipalities consistent with 36 CFR 251.9, 18 AAC 80.520(c)(3), and FSM 2718.4, as applicable. Consult the municipality before authorizing management activities in a non-enacted municipal watershed.
 3. For non-municipal watersheds, coordinate with owners or operators of public water systems to meet watershed protection needs on a case-by-case basis. Develop written agreements with owners or operators consistent with 18 AAC 80.520(c)(3), if applicable. Consult with owners or operators before authorizing management activities in a non-municipal watershed.

- C. Seek to avoid adverse impacts to soil and water resources (such as accelerated surface erosion or siltation of fish habitat) when conducting land use activities on wetland, floodplains, and riparian areas. (Consult Executive Orders 11988, 11990, and 11514; FSM 2510 and 2520; U.S. Army Corps of Engineers regulations (33 CFR 323); NFMA Planning Regulations (36 CFR 219.27); appropriate Best Management Practices (Chapter 10 of the Soil and Water Conservation Handbook, FSH 2509.22) for wetlands, floodplains and riparian areas; and, Forest-wide Standards and Guidelines for Wetlands and Riparian Areas.)
- D. Under applicable state and Federal Law, reserve both ground and surface water rights to manage National Forest System lands. (Consult FSM 2540.)
 - 1. Review projects and reserve water rights or notify the state of water uses for reservation management purposes, when it is determined such uses are necessary for carrying out the purposes of the project. Be sure review of uses and needs includes at least the following items:
 - * In-stream flow needs
 - * Adequate flow for fish passes and habitat
 - * Forest Service administrative and domestic use
 - * Developed special uses and recreation sites
- E. Consult with state, Federal and local government agencies and Native American communities for the protection, mitigation, and/or improvement of the water and soil resources.
- F. Participate actively in planning by other Federal, state and local agencies where these plans could affect the beneficial uses of water on National Forest System lands.
- G. Cooperate with state and Federal agencies having overlapping resource management responsibilities including the Alaska Department of Fish and Game, Alaska Department of Environmental Conservation, U.S. Army Corps of Engineers, U.S. Environmental Protection Agency, National Marine Fisheries Service, and the U.S. Fish and Wildlife Service. Execute plans and decisions in consideration of the statutory responsibilities of these agencies.

II. *Watershed Analysis and Cumulative Watershed Effects*

- A. Adapt "Ecosystem Analysis at the Watershed Scale: Federal Guide for Watershed Analysis" (August 1995) as a framework for conducting watershed analysis. Watershed analysis should be issue-driven and address cumulative watershed effects such as changes in streamflow regime, sedimentation, stream temperature, and conservation of key riparian and wetland areas and fish habitat.
 - 1. Integrate water quality and hydrology into broader ecosystem analysis efforts and project planning. Select watersheds for analysis based on the following criteria: FHIP 1 or FHIP 2 watersheds; threatened, endangered or sensitive species; recommended or designated Wild, Scenic or Recreational Rivers; municipal watersheds; and waters listed on the State of Alaska's 305(b) and 303(d) lists.
- B. Minimize cumulative watershed effects which could adversely affect soil and water resources and change stream channel equilibrium, such as: 1) changes in sediment transport leading to stream aggradation, degradation and/or streambank erosion; 2) silting in of pools; and, 3) reduction in aquatic habitat capability. Evaluate cumulative effects at the watershed scale during project planning and analysis, consistent with the National Environmental Policy Act. Consult BMP 12.1 (Soil and Water Conservation Handbook, FSH 2509.22) for cumulative watershed effects analysis guidance.

Watershed Resources Improvements: S&W2

I. Soil and Water quality protection and improvement

- A. Protect or improve water quality and sustain soil productivity. Implement the Alaska Regional Watershed Restoration Strategy (October 1995 version and subsequent updates) as funding allows.
 1. Conduct Watershed Condition Surveys (WCS) to determine treatment needs. Identify and prioritize needs on the Forest Watershed Improvement Needs Inventory (WINI) database. Complete watershed improvement project plans and coordinate with fish habitat improvement projects. Include projects in Sale Area Improvement Plans and use K-V funds as appropriate. (Consult FSM 2510 and 2520.)
 2. Give priority to cost-effective watershed improvement projects with the most erodible conditions directly affecting the beneficial uses of water.
 3. Whenever practical, use plants and materials which are indigenous and improve wildlife habitat.
 4. Inspect all watershed improvements until the final evaluation indicates that maintenance is no longer needed.

SUBSISTENCE

Forest-wide Standards & Guidelines

Subsistence: SUB

I. *Subsistence*

- A. In accordance with Title VIII of the Alaska National Interest Lands Conservation Act of 1980, it is the policy of the Forest Service that:
 - 1. Consistent with the purposes for which National Forest System lands in Alaska were established, sound management principles, and the conservation of healthy populations of fish and wildlife, the utilization of the National Forest System lands in Alaska is to cause the least adverse impact possible on rural residents who depend upon subsistence.
 - 2. Provide for the continuation of the opportunity for subsistence uses by rural Alaskan residents, including both Natives and non-Natives.
 - 3. Non-wasteful subsistence uses of fish and wildlife and other renewable resources shall be the priority consumptive uses of all such resources on National Forest System lands in Alaska when it is necessary to restrict the taking of such resources.
 - 4. Cooperate with adjacent landowners and land managers in managing subsistence activities and in protecting the continued viability of all wild renewable resources on National Forest System lands.
- B Consult the designated Federal Southeast Regional Advisory Council for opinions and recommendations on current and proposed management actions, pursuant to ANILCA, Title VIII, Section 805.
- C. Locate and manage Forest management activities considering impacts upon rural residents who depend upon subsistence uses of the resources of National Forest lands. In compliance with ANILCA, Title VIII, Section 810(a), and the Region 10 Subsistence Handbook, the Forest Service shall:
 - 1. In determining whether to withdraw, reserve, lease, or otherwise permit the use, occupancy, or disposition of National Forest lands, evaluate the effect of such use, occupancy, or disposition on subsistence uses and needs, the availability of other lands for the purposes sought to be achieved, and other alternatives which would reduce or eliminate the use, occupancy, or disposition of National Forest lands needed for subsistence purposes. No such withdrawal, reservation, lease, permit or other use, occupancy, or disposition of such lands which may significantly restrict subsistence uses shall be effected until the following actions are accomplished:
 - a) Notice is given to the appropriate Federal and State agencies, local committees, recognized Tribal Governments, other Tribal entities and Federal Regional Advisory Councils established pursuant to Section 805 of ANILCA;
 - b) Notice of a hearing is given and a hearing is held in the vicinity of the area involved;
 - c) A determination is made that: 1) such a significant possibility of a significant restriction of subsistence uses is necessary, consistent with sound management principles for the utilization of the public lands; 2) the proposed activity will involve the minimal amount of public lands necessary to accomplish the purposes of such use, occupancy, or other disposition, and 3) reasonable steps will be taken to minimize adverse impacts upon subsistence uses and resources resulting from such actions.
 - 2. If required to prepare an environmental impact statement pursuant to the National Environmental Policy Act, the notice and hearing and findings required in 1 above shall be a part of such environmental impact statement.
 - 3. Regardless of whether or not an EIS is required, in all project scoping, include initial and on-going contact with the appropriate Federal and State agencies, local committees,

recognized Tribal Governments, other Tribal entities and the Federal Regional Advisory Council.

4. After compliance with the procedural requirements of Section 810 of ANILCA and other applicable law, the responsible Forest Service official may manage or dispose of public lands under their primary jurisdiction for any of those uses or purposes authorized by ANILCA or other law. Management to accommodate identified subsistence uses could include:
 - a. Implement planned project;
 - b. Canceling all or part of the planned project;
 - c. Substituting another site for the project and prepare another environmental analysis if the change is significant;
 - d. Implementing appropriate mitigation measures.
- D. Manage habitats of subsistence species to minimize the likelihood of significant short-term and irreversible or long-term adverse effects upon those populations and species.
- E. Evaluate changes in subsistence use patterns and activities in cooperation with appropriate state and Federal agencies by conducting annual surveys of wildlife populations and subsistence harvest and consulting with subsistent user groups.
- F. Make recommendations for subsistence regulations to the Southeast Regional Advisory Council and the Federal Subsistence Board and provide technical support to these two bodies for analyzing the effects of proposed regulations on Federal Public Lands under Forest Service Jurisdiction.
- G. Provide for enforcement of subsistence use regulations promulgated by the Federal Subsistence Board.
- H. Provide public information concerning subsistence management on National Forest System lands.
- I. In cooperation with appropriate state and Federal agencies, and recognized Tribal Governments, maintain a subsistence research program and data base.
- J. Maintain reasonable access to subsistence resources as required by ANILCA, Section 811. Address subsistence concerns when developing road management objectives (RMOs) for forest roads.
- K. Seek to maintain abundance and distribution of subsistence resources necessary to meet subsistence user needs.
- L. Consider subsistence users' needs in the scheduling, locating, and designing fish and wildlife habitat improvement projects.
- M. In the development of access and facilities, seek opportunities to provide for subsistence users (for example, anchorages and shelters). Such access and facility opportunities should be identified and planned with local subsistence users.

THREATENED, ENDANGERED, CANDIDATE, AND SENSITIVE SPECIES

Forest-wide Standards & Guidelines

Threatened, Endangered and Sensitive Species: TE&S

I. *Threatened or Endangered Species*

A. Meet the requirements of the Endangered Species Act, as amended.

1. Ensure that projects funded, authorized, or permitted by the Forest Service do not jeopardize the continued existence of threatened or endangered species. Use informal and formal consultation (for listed species) procedures, and conference (for formally proposed species) procedures (whichever is appropriate) with the National Marine Fisheries Service and the U.S. Fish and Wildlife Service for all major construction activities and other forest management activities which may have an effect on federally-listed threatened, endangered, or proposed species population, or critical habitat. Prepare biological assessments or evaluations, as required, for species that may be affected by management activities (Consult FSM 2670).
2. Maintain and/or improve habitats for the recovery and conservation of species that are federally-listed as threatened or endangered, and those species that are formally proposed for listing as federally threatened or endangered. Implement national and regional Forest Service policy and direction for management of threatened, endangered, and proposed species (Consult FSM 2670.)
3. Support monitoring, research, and inventory work for threatened, endangered, and proposed species. Coordinate with appropriate Federal and state agencies. Use "challenge cost share," Sikes Act agreements, "Section 6 Grants" (under authority of the Endangered Species Act), and other partnerships.
4. Conserve habitats for species tending toward federal listing to preclude their listing and need for additional protection under the Endangered Species Act. Meet this objective by implementing the following interagency memorandums of understanding:
 1. National Memorandum of Understanding between the U.S. Department of Agriculture Forest Service, U.S. Department of Interior Fish and Wildlife Service, Bureau of Land Management, and National Park Service and the U.S. Department of Commerce National Marine Fisheries Service, and International Association of Fish and Wildlife Agencies (January 25, 1994, 94-SMU-058 as amended). The purpose of the MOU is to establish a framework for the conservation of species that are tending toward federal listing.
 2. Regional Memorandum of Understanding that is tiered to the National MOU (1. above) entered into between the Forest Service, Alaska Region, Fish and Wildlife Service, Alaska Region, and Alaska Department of Fish and Game (December 20, 1994 as amended). The objective of this MOU is to promote interagency cooperation in the conservation of species tending toward listing under the Federal or State Endangered Species Acts.
 - a. Cooperators shall meet at least annually to assess implementation of the MOU and success in meeting MOU objectives.

B. Steller Sea Lion

1. Protect Steller sea lion habitats.
2. Ensure that Forest Service funded, permitted or authorized activities are conducted in a manner consistent with the requirements, consultations, or advice received from the appropriate regulatory agencies for the *Marine Mammal Protection Act*,

the *Endangered Species Act*, and National Marine Fisheries Service guidelines for approaching seals and sea lions. "Taking" of sea lions is prohibited; "taking" includes harassing or pursuing or attempting any such activity

3. Locate facilities, camps, LTFs, campgrounds and other developments 1 mile from known haulouts, and, farther away, if the development is large.
4. Cooperate with state and other federal agencies to develop sites and opportunities for the safe viewing and observation of sea lions by the public. Maintain a public education program explaining forest management activities related to sea lions in cooperation with state and other federal agencies.

C. Whale Habitats

1. Provide for the protection and maintenance of whale habitats.
2. Ensure that Forest Service permitted or approved activities are conducted in a manner consistent with the *Marine Mammal Protection Act*, the *Endangered Species Act*, and National Marine Fisheries Service regulations for approaching whales, dolphins, and porpoise. "Taking" of whales is prohibited; "taking" includes harassing or pursuing or attempting any such activity.

D. American peregrine falcon

1. Provide for the protection and maintenance of habitats for migrating American peregrine falcons.
2. Obtain increased understanding and knowledge about the migration of American peregrine falcons through southeast Alaska (for example the timing of migrations, the length of stay in southeast Alaska, important foraging areas, important prey items, etc.).
3. Protect seabird rookeries and waterfowl concentration areas that provide important prey foraging habitat (see Forest-wide Wildlife Standards and Guidelines).

II. Sensitive Species

- A. Implement national and regional Forest Service policy and direction for the conservation and management of sensitive species and subspecies of animals and plants (including identified and unique fish stocks and plant varieties). Sensitive Species are those taxa identified by the Regional Forester for which a viability concern has been identified due to:
 1. A predicted or documented downward trend in species populations;
 2. A predicted or documented downward trend in species habitat;
Continued downward trends in population or habitat capability may lead to local or forestwide extirpation, federal listing under the ESA or both.
- B. Prepare biological evaluations for each project authorized, funded, or conducted on National Forest System lands to evaluate and disclose the potential impacts of proposed activities on sensitive species. Consult FSM 2670 for comprehensive elements and standards for the preparation of biological evaluations.
 1. If a biological evaluation concludes that a project may have an adverse effect on a sensitive species or its habitat, consult with appropriate state and federal agencies to consider mitigation measures to reduce possible effects. These measures include avoiding cumulative impacts that would further population declines and possible federal listing.
 2. Maintain habitat to support well-distributed viable populations of sensitive species throughout the recent range of the species by avoiding or minimizing impacts to species whose viability has been identified as a concern.
 - a. Where desirable, implement habitat improvement projects to increase habitat capabilities and expand species distributions.
 - b. Where necessary to achieve species conservation objectives, protect important habitats.

3. Conduct project level inventories for sensitive species to develop biological evaluations. The intensity and scope of inventories should be commensurate with the potential risk of a proposed project on sensitive species.
 4. Identify research needs for sensitive plants and animals on the Forest.
- C. Sensitive species habitat conservation. The following site specific habitat management standards provide guidance for management of locally important habitats for sensitive species but independently do not necessarily represent a comprehensive management strategy to meet conservation objectives.
1. At the project level, monitor habitat management activities to:
 - a. Ensure standards are implemented as prescribed.
 - b. Evaluate whether habitat management standards are achieving conservation objectives.
- D. Northern Goshawk
1. Preserve habitat around all confirmed and probable goshawk nests.
 - a. Confirmed Nest: A goshawk nest identified with adults, eggs, or nestlings or goshawk feathers or eggs obtained from an inactive nest. Criteria include:
 1. a goshawk observed on or near a nest;
 2. nestlings or branchers (young not able to fly) observed on or near a nest;
 3. goshawk feathers or eggs obtained from the nest and confirmed by an experienced biologist.
 - b. Probable Nest: Sites where nests have not been located or confirmed by biologists, but adult goshawk behavior or the presence of juvenile goshawks indicate a probable nesting location. Criteria include:
 1. one or more nest structures indicative of goshawk were found with goshawk prey remains, but without positive identified goshawk on the nest and without positive identified feathers from nest;
 2. aggressive, territorial breeding season adults vocalizing or attacking an observer (with or without locating a nest);
 3. adults observed during the breeding season in a territory *and* recently fledged young were observed (with or without locating a nest).
 - c. Nest Stand: Maintain an area of at least 25 acres around the Confirmed nest tree (and Probable nest tree if identified) and attempt to include prey handling areas, perches, and roosts. Vegetative structure objectives generally includes a multi-layered, closed (over 60%) forest canopy, a relatively open understory, with large trees (usually 20+ inches DBH) and low ground vegetation. These structural characteristics generally equate to Volume Class 5 and higher in the timber resource inventory.
 Management: no vegetative manipulation or new road construction is permitted. Existing roads may be maintained. Permit no continuous disturbance likely to result in nest abandonment within the surrounding 600 feet from March 15 to August 15. Activity restrictions are removed for active nests that become inactive or unsuccessful.
 - b. Nesting Habitat: Maintain an area of not less than 75 acres surrounding the Nest Stand (total management area of 100 acres). Include inactive nest stands, hiding cover and foraging opportunities for young goshawks. Vegetative structure is similar to the Nest Stand but may include some intermediate canopy (e.g. Volume Class 4).
 Management: No commercial timber harvest is permitted within the Nesting Habitat. New road construction is permitted (outside the Nest Stand) if no other reasonable roading alternatives outside the mapped Nesting Habitat exist. Other management activities which maintain the integrity of the forest stand structure are consistent with the objectives for this area.

Activities such as cabin, trail, or campground construction should be consistent if designed with minimal vegetative manipulation.

2. Cooperate and coordinate with state and other Federal agencies to understand the life history requirements and distribution of the northern goshawk.
 3. Conduct inventories to determine the presence of nesting goshawks for proposed projects. Use the most current inventory protocols developed in cooperation with the appropriate state and federal agencies.
 4. Exchange records with appropriate state and Federal agencies annually on the status of populations and habitat.
- B. Peale's Peregrine Falcon
1. Provide for the protection and maintenance of Peale's peregrine falcon habitat.
 2. Maintain nest site location data in cooperation with the U.S. Fish and Wildlife Service.
 3. Exchange records with appropriate state and Federal agencies annually on the status of populations and habitat.
 4. Plan project activities to avoid adverse impacts to the falcons and their habitats. Evaluate the effects of proposed projects within two miles of known falcon nests considering such items as: a) human activities (aircraft, ground and water transportation, high noise levels, and permanent facilities) which could cause disturbance to nesting pairs and young during the nesting period April 15 - August 31; b) activities or habitat alterations which could adversely affect prey availability. Coordinate all project activities with the U.S. Fish and Wildlife Service.
 5. Within 15 miles of all known or historical nest sites, prohibit all use of herbicides and pesticides.
- C. Trumpeter Swan
1. Provide for the protection and maintenance of trumpeter swan habitats.
 2. Avoid disturbance of trumpeter swans, particularly during nesting, brood-rearing, and wintering periods, to prevent abandonment of their nests, brood-rearing areas, and winter habitats. As a general guideline, limit developments within 0.5 miles (2640 feet) of wetlands used by nesting, brood-rearing, and wintering trumpeter swans. The District Ranger will take feasible measures to minimize disturbance.
 3. Avoid placement of overhead wires, fences, or other structures which could interfere with the flight paths of swans and cause injury or mortality.
 4. Cooperate with state and other Federal agencies to develop sites and opportunities for the safe viewing and observation of trumpeter swans by the public. Maintain a public education program explaining Forest management activities related to trumpeter swans in cooperation with state and other Federal agencies.
- D. Osprey
1. Maintain and improve osprey populations and habitat.
 2. Establish a minimum 330-foot radius habitat management zone around each existing osprey nest tree. Determine the exact boundary based on local topography, timber type, windfirmness, and other factors.
 3. Within the osprey nest zones, prohibit all land use activity which would likely disturb nesting osprey. Infringement may be acceptable depending on the nature of the project and timing of the activity.
 4. Maintain the osprey nest zone even though the nest or nest tree becomes inactive.
 5. Provide trees suitable for use by osprey for nesting, feeding and perching. Consider the following:
 - * Reserve trees and live trees that dominate or codominate a shoreline.
 - * Reserve trees with broken tops and live trees with branches large enough to support birds.
 6. New nests will receive the same level of management protection as existing nests, however, osprey which select new nests in close proximity to existing human activities will not cause those human activities to be modified.

7. Exchange records with appropriate state and Federal agencies annually on the status of populations and habitat. Ideally, population and nest surveys (checks on known nests) should be done annually.
- E. Island King Salmon Habitats
1. Provide for the protection and maintenance of runs of king salmon that naturally occur on islands including the runs in King Salmon and Wheeler creeks on Admiralty Island.
 2. Coordinate with the Alaska Department of Fish and Game and National Marine Fisheries Service on commercial, sport and subsistence fish use, hatchery egg take programs, and other activities affecting the viability of king salmon runs in order to conserve these unique populations.
 3. Avoid the placement of facilities or issuing permits for activities near these streams that would increase harvest pressure on these king salmon runs.
 4. Coordinate with other groups or Federal and state agencies to develop a program of study to understand the life history and genetic characteristics of these unique runs of king salmon.
- F. Northern Pike Habitat
1. Provide for the protection and maintenance of northern pike found in the Pike Lakes on the Yakutat Foreland. This population of northern pike is unique to Southeast Alaska.
 2. Avoid the placement of facilities near the Pike Lakes which would increase harvest pressure to the point where the viability of these species is affected.
 3. Coordinate with the Alaska Department of Fish and Game on any activities that would affect the viability of the northern pike.
 4. Coordinate with other groups or Federal and state agencies to develop a program of study to understand the life history and genetic characteristics of this unique population of northern pike.
- G. Fish Creek Chum Salmon
1. Provide for the protection and maintenance of chum salmon in Fish Creek near Hyder. This population of chum salmon is characterized by their extraordinary large size.
 2. Coordinate with the Alaska Department of Fish and Game and the National Marine Fisheries Service on commercial, sport and subsistence fish use, hatchery egg take programs, and other activities affecting the viability of the chum salmon runs in Fish Creek in order to preserve these populations.
 3. Coordinate with other groups or Federal and state agencies to develop a program of study to understand the life history and genetic characteristics of this run of chum salmon.
 4. Provide for habitat improvement and maintenance to maintain the viability of this run of salmon, as necessary.
- H. Sensitive Plants
1. Provide for the conservation of habitats that support populations of sensitive plant species to maintain the integrity of representative populations of sensitive plants across all islands or all terrestrial landscapes throughout their range.
 2. Consult the most recent version of the Regional Forester Sensitive Species list to identify sensitive plant species.
 3. Conduct inventories to evaluate the potential impacts of proposed projects on sensitive plants.
 - a. The need for and intensity of rare plant surveys should be commensurate with the risk associated with the project, the sensitive plants involved, and the level of available knowledge. Surveys should be conducted by individuals qualified to thoroughly identify sensitive plant species.

- b. Survey intensity levels for plants:
 1. LEVEL 1. Field Check: Survey the area with a quick 'once-over' but do not walk completely through the project area. The entire project area is not examined.
 2. LEVEL 2. Cursory: Survey the area with a 'once-over' by walking through the project area. The entire project area is not examined.
 3. LEVEL 3. Limited Focus: Survey to closely examine one or more habitat-specific locations within the project area, but do not look at the rest of the area.
 4. LEVEL 4. General: Survey with more intensity by walking through the project area and walking around the perimeter of the area or by walking more than once through the area. Most of the project area is examined.
 5. LEVEL 5. Intuitive Controlled: Survey by conducting a complete examination of specific areas of the project after walking through the project area and perimeter or by walking more than once through the area.
 6. LEVEL 6. Complete: Survey throughout the area until nearly all of the area has been examined.
- c. Conduct surveys using the "timed meander" method at the time of year when sensitive plants are identifiable. Surveys should be scheduled whenever necessary to enable species identification.
- d. If sensitive species are located during surveys, conduct a risk assessment within the biological evaluation. The assessment should consider the consequences of the proposed action on the population and the likelihood that the effects will occur. Consider direct, indirect, and cumulative effects. Integrate these factors to develop an overall risk assessment to support finding in the biological evaluation.
4. No herbicide may be aerially applied within 600 feet nor ground-applied within 60 feet, of any identified population of a sensitive plant species.

III. *Candidate Species and Species of Concern*

- A. Implement national and regional Forest Service policy and direction for the habitat management of candidate species and species of concern.
- B. Coordinate with the U.S. Fish and Wildlife Service in the conservation and management of Candidate species and Species of Concern consistent with the objectives of the Interagency Memorandum of Understanding to prevent the need for Federal listing and protection under the Endangered Species Act.
- C. Candidate Species and Species of Concern:

Category 1: Those species for which information is currently available to support the Proposed listing of a species as endangered or threatened under the provisions of the Endangered Species Act.

Species of Concern: Those species which might qualify for protection under the Endangered Species Act but further information on vulnerability and threats is needed before qualification for listing can be determined.
- E. Contact the U.S. Fish and Wildlife Service for the most recent list of Candidate species and Species of Concern during initial phases of project development.

TIMBER

Forest-wide Standards & Guidelines

Allowable Sale Quantity

I. *Decade Allowable Sale Quantity*

- A. The amount of chargeable timber volume that can be sold from the Tongass National Forest, for a decade, cannot exceed the established allowable sale quantity. The yearly quantity may exceed or be less than the decadal average. The allowable sale quantity is a ceiling; it is not a future sale level projection or target and does not reflect all of the factors that may influence future sale levels.
 - 1. The allowable sale quantity (including utility volume) for the first ten years of plan implementation is: X,XXX million cubic feet (An approximate MMBF equivalent of: XXX).

Integrated Resource Inventory - Existing Vegetation: TIM111-1

I. *Inventory*

- A. Vegetative inventories collect data describing the tree component of the vegetation on forested lands. Existing vegetation inventories will provide efficient, compatible, and statistically valid data describing the timber resource, its condition, and trends.
 - 1. Coordinate vegetative inventories with other data collection efforts to minimize duplication and to maximize the use of the resulting information. Emphasize multiple-resource or integrated resource inventories.
 - 2. Reinventory vegetation on a 10 to 15 year cycle.
 - 3. Design vegetative inventories to National Forest System standards.

Silvicultural Examination and Prescription: TIM111-2

I. *Stage II Intensive Inventory*

- A. Manage vegetation according to a silvicultural prescription certified by a certified silviculturist; this applies to any vegetative manipulation activity.
- B. Conduct silvicultural examinations and develop silvicultural prescriptions for proposed resource management activities where vegetative manipulation of the forest is involved. (Consult Region 10 Silvicultural Examination and Prescription Handbook - 2409.26d).
- C. Conduct silvicultural examinations as part of timber sale analysis. Silvicultural examination is the process of gathering vegetative data to provide a basis for silvicultural and other management decisions.
- D. Develop silvicultural prescriptions as part of project planning. Complete all prescriptions before project implementation where implementation is defined as either the Final ROD, Environmental Assessment Decision Notice or Decision Memo. Base silvicultural prescriptions on silvicultural examinations; include a written description of the current stand conditions, the anticipated future condition based on management activities, and a statement on land management and resource objectives. The prescription should also include silvicultural practices, cutting methods, or other management actions that will be applied sequentially to achieve the desired stand condition and structural attributes. A silvicultural analysis for project planning should address both stand and landscape conditions.

- E. Facilitate development of appropriate silvicultural system prescriptions by describing desired conditions in terms of structural attributes.
- F. Include an appropriate species mix for regeneration in the silvicultural prescription prepared during the environmental analysis. The "appropriate species" is based on the potential of the site as indicated by plant associations and adjacent stand conditions.
- G. Evaluate the natural reproduction potential and existing reproduction as part of the silvicultural analysis and prescription. Where possible, harvest prescriptions should consider leaving advance regeneration to meet reforestation needs and stand objectives.
- H. Consider regenerating and maintaining minor species, where appropriate for the site, as viable components of future stands and for vegetative diversity. Minor species include, but are not limited to, Alaska yellow-cedar, western redcedar, and Pacific yew.
- I. Select a silvicultural system that meets the resource and vegetation management objectives of the area, including objectives for biological diversity, long-term site productivity, visual objectives, and forest health.
- J. Even-aged, two-aged, and uneven-aged systems shall be available for use.
- K. Select rotations that produce sawtimber products, unless otherwise provided for in the Land Use Designation.
- L. Even-aged timber stands shall not be scheduled for final harvest before stand growth has reached or surpassed 95% of the culmination of mean annual increment in cubic feet. Exceptions may be made where special resource considerations require earlier harvest. Exceptions also may be made where small inclusions of young stands in harvest units that otherwise meet this requirement will result in more logical management units allowing greater efficiency or less resource impacts.
- M. Even-aged stands may be regenerated without having reached culmination of mean annual increment where salvage is prescribed after windthrow, where stands are in imminent danger from insect or disease attack or cutting for experimental and research purposes.

II. *Cutting Methods* (Alternatives 3, 4, 5 ,6 and 8)

- A. Emphasize green-tree retention and snag retention in landscape management. Retain at least 15% of the area associated with each regeneration cutting unit (stand). As a general guide, 70% of the total area to be retained should be aggregates of moderate to larger size (.5 acre to 2.5 acres or more) with the remainder as dispersed structures (individual trees, and possibly including smaller clumps less than .5 acre). Larger aggregates may be particularly important where adjacent areas have little late-successional habitat. To the extent feasible, patches and dispersed retention should include the large, old live trees, and hard snags occurring in the unit. Patches should be retained indefinitely. This applies to regulated land and only regulated land counts toward the 15%.

Timber Resource Planning: TIM112

I. *Information Gathering and Maintenance*

- A. Provide timber resource information necessary to prepare timber harvest projects. This includes maintenance of inventories, analysis of data, and input for environmental analysis.

II. *Pacific Yew* (Pacific Yew Act, January 3, 1992, 16 U.S.C 4804)

- A. Inventory and maintain existing populations of Pacific yew.
 - 1. Locate and document the location of any existing plants during Forest Service project activities.

2. If found, implement site specific silvicultural prescriptions to maintain Pacific yew's regeneration capabilities and presence on the site.
3. Retain Pacific yew during Timber Stand Improvement activities such as precommercial thinning where ever feasible.

Timber Resource Sale Schedule: TIM112-3

I. Timber Sale Schedule

- A. The scheduled timber sales for the first ten years of the plan are included in the Timber Sale Schedule. This schedule projects the location and volume of sales.
 1. Update or adjust annually the ten-year timber sale schedule to reflect specific project viability, budgetary actions, availability of personnel, and other operational constraints.
 2. Publish a 12-month sale schedule that is updated every 6-months.

Timber Resource Coordination: TIM113

I. Timber Program

- A. Consider the management emphasis of the project area in project design and environmental analysis for timber activities.
- B. The project NEPA process, which forms the basis for the Sale Area Improvement/Knutson-Vandenburg (K-V) Plan, identifies resource improvement opportunities within the sale area. Schedule essential reforestation prioritized by mitigation or enhancement.
- C. Coordinate all projects which have an effect on the coastal zone, with the Alaska Office of Management and Budget, Division of Governmental Coordination, to ensure activities are consistent, to the maximum extent practicable, with the Alaska Coastal Management Program.

Timber Sale Preparation: TIM114

I. Scenery Management

- A. Visual Absorption Capability (VAC) ratings describe the ability of a landscape to absorb management activities using the terms: High, Intermediate and Low. A Low VAC setting generally has steep slopes with little landscape variety, while a High VAC setting is relatively flat or has a high degree of variety in the landscape or both.
- B. Apply the following visual quality objectives (VQO's) to timber sale areas based on the land use designation assigned to the area. Typical regeneration methods and approximate unit sizes for each of the VQO's and in landscapes of different VAC ratings are also described.
 - * **VQO Retention:**
 - Low : Single tree or group selection (less than 2 acres)
 - Intermediate : Single tree or clearcut (approx. 5 - 15 acres)
 - High : Clearcut (appx. 15 - 30 acres)
 - * **VQO Partial Retention:**
 - Low : Group selection or clearcut (approx. 2 - 10 acres)
 - Intermediate : Clearcut (approx. 10 - 40 acres)
 - High : Clearcut (approx. 40 - 60 acres)
 - * **VQO Modification:**
 - Low : Clearcut (approx. 15 - 40 acres)
 - Intermediate : Clearcut (approx. 40 - 60 acres)
 - High : Clearcut (approx. 80 - 100 acres)
 - * **VQO Maximum Modification:**

Low : Clearcut (approx. 50 - 75 acres)
Intermediate : Clearcut (approx. 80 - 100 acres)
High : Clearcut (approx. 80 - 150 acres)

- C. Size, shape, orientation to viewer, color, texture, etc. are critical elements in determining whether or not an activity meets the assigned VQO. Consideration for the visual resource is essential early on in the planning process, particularly in areas seen from a Visual Priority Route. However, each landscape setting is different and should be evaluated on a case-by-case basis. There may be instances where the VQO can be met while the proposed activity is greater than the guideline, or there also may be cases where the activity must be reduced to meet the intent of the VQO.
- D. Tree limbs, root wads, and excessively high tree stumps are considered logging slash. To meet Retention and Partial Retention VQO's adjacent to road corridors, it may be necessary for the contractor to do additional clean-up as part of the timber sale.
- E. Visual Quality Objectives - Guidelines for Alternative Harvest Strategies Other Than Clearcutting

Though the guidelines above imply the need to use uneven-aged harvest techniques in Retention/Low VAC and Partial Retention/Low VAC settings, the guidelines for the other VQO/VAC combinations display approximate unit sizes assuming the use of clearcut techniques. The guidelines described above were based on several analyses of harvested viewsheds throughout the Tongass that represented different VAC characteristics and different levels and scales of harvest. Similar specific guidelines for other types of silvicultural treatments cannot be provided due to the lack of experience with these treatments. However, the following paragraphs provide some general guidelines concerning the use of harvest methods other than clearcutting.

1. **Clearcut With Percentage of Stand Left As Legacy Trees** - Approximately 20%-40% of the trees within a clearcut area are retained, the size of a clearcut might be increased anywhere from 10-30% and still meet the same VQO. Also it may be possible to meet a higher VQO by leaving an appreciable percentage of legacy trees within a clearcut. However many factors such as natural vegetative patterns, steepness and obliqueness of slope, and viewing distance play an important role in determining how to apply this technique in a specific landscape.
2. **Uneven-aged management - single-tree or group selection** - Meeting a retention or partial retention VQO in a low VAC setting would require a relatively small percentage of stems removed on a *single-tree basis* - anywhere from 5 to 20%. The exact amount depends a lot on slopes, viewing distances, and natural characteristics of the stand. To meet a modification VQO it is possible that a larger percentage could be removed. Exactly how much and what the limit would be is also based on the existing landscape characteristics. When utilizing a *group selection method*, the appropriate size and distribution of the groups are heavily dependent on the VQO and particularly the natural landscape characteristics, such as the size and distribution of natural openings. It is clear, from observations of the few examples available of this type of treatment, that the design of the groups should usually replicate natural openings and avoid the use of regular circular or square patterns. The initial application of these harvest techniques will have to be experimental in nature, and employ a variety of harvest intensities and designs, and then be followed up by careful monitoring.

II. Regeneration Methods

- A. Regeneration methods are subdivided into even-aged silvicultural systems, two-aged systems, and uneven-aged silvicultural systems. Even-aged systems include clearcutting,

seed tree, and shelterwood. Two-aged systems include clearcutting with reserves, seed tree with reserves and shelterwood with reserves. Uneven-aged systems include single-tree selection, group selection and group selection with reserves.

1. Ensure that silvicultural systems other than clearcutting are considered through an appropriate project level prescription process and that documentation of this process and results are provided in NEPA disclosure and decision documents. Through NEPA, analyze current scientific information related to the applicability of alternative timber harvest methods. Document the predictable effects associated with alternatively using other regeneration methods.
- B. Test alternative regeneration harvest methods and monitor results in cooperation with timber purchasers and other interested parties.

III. *Even-aged Systems*

- A. Apply even-aged silvicultural systems where it will not create isolated timber stands that cannot be economically harvested in the future. Do not locate cutting units where future logging will destroy regeneration under earlier regeneration cutting.
- B. Clearcutting is an even-aged regeneration method. There are a number of supportive reasons for the use of this method in Alaska's western hemlock-Sitka spruce forests. These include: excellent regeneration of desired species, effective dwarf mistletoe control, viable harvest economics, and compatibility with the use of standard logging systems. Other silvicultural techniques have been used to a limited degree and are still experimental in nature (see information needs section).
 1. Use clearcutting only where such a practice is determined to be the best system to meet the objectives and requirements of Land Use Designations.
 2. Generally apply clearcutting where trees are cut to achieve timber production objectives, where there is risk of dwarf-mistletoe infection and disease control in desired, or where there is a high risk of windthrow.
 3. The Chief's directive (June 4, 1992) on ecosystem management limits "clearcutting" to areas where it is essential to meet Forest Plan objectives and involve one or more of the following circumstances:
 - a. To establish, enhance or maintain habitat for Endangered, Threatened and Sensitive species.
 - b. To enhance wildlife habitat or water yields, or to provide for recreation, scenic vistas, utility lines, road corridors, facility sites, reservoirs or similar development.
 - c. To rehabilitate lands adversely impacted by events, such as fires, windstorms or insect or disease infestations.
 - d. To preclude or minimize the occurrence of potentially adverse impacts from insect or disease infestations, windthrow, logging damage or other factors affecting Forest health.
 - e. To provide for the establishment and growth of desired trees or other vegetative species that are shade intolerant.
 - f. To rehabilitate poorly stocked stands due to past management practices or natural events.
 - g. To meet research needs.
- C. Shelterwood is an even-aged regeneration method. The shelterwood regeneration method can be applied to all timber types on the Tongass National Forest.
 1. The shelterwood regeneration method may be used to meet Land Use Designation objectives. Objectives often include the protection of visual resources, wildlife and fish, and the harvesting of specialty products.
 2. If applied for harvesting noncommercial forest products, shelterwood must be applied only where recurring salvage operations can be conducted.
 3. The shelterwood silvicultural system is generally limited to tractor, cable yarding with lateral capabilities, or aerial harvest systems.

- D. Seed tree is an even-aged regeneration method. The seed tree regeneration method may be used where natural regeneration is desired and there is not an adequate seed source in surrounding stands.
 - 1. Use seed tree only where such a practice is determined to be the best system to meet the objectives and requirements of the Land Use Designation.
 - 2. Generally apply the seed tree method where trees are cut to achieve timber production objectives, and where there is no or low risk of dwarf-mistletoe infection or windthrow.

IV. *Size of Clearcuts*

- A. NFMA regulations provide that 100 acres is the maximum size of created openings allowed for the western hemlock-Sitka spruce forest type of coastal Alaska, unless excepted under specific conditions. Cedar and hardwoods are usually considered to be a component of the western hemlock-Sitka spruce ecotype in Southeast Alaska and, therefore, the 100-acre limit will also apply to these types of stands.
- B. Recognizing that harvest units must be designed to accomplish management goals, created openings may be increased in size where larger units will produce a more desirable contribution of benefits.
 - 1. Use the following factors when proposing units that would exceed 100 acres:
 - * Natural and biological hazards to the survival of residual trees and surrounding stands
 - * Topography
 - * Relationship of units to other natural or artificial openings and the proximity of units
 - * Coordination and consistency with adjacent Land Use Designations
 - * Effects on water quality and quantity
 - * Visual Absorption Capability (VAC)
 - * Effect on wildlife and fish habitat, based on the most recent research
 - * Regeneration requirements for desirable tree species
 - * Transportation and regeneration method requirements
 - * Relative total costs of preparation, logging, and administration of harvest
- C. Where it is determined by an environmental analysis that exceptions to the size limit are warranted, the actual size of openings may be up to 200 acres, if required due to natural biological hazards to the survival of residual trees and surrounding stands, and up to 150 acres for the remaining factors, with the approval of the Forest Supervisor. The Forest Supervisor will identify the particular conditions under which the larger size is warranted by considering the benefits to be gained.
- D. Exceptions to the 150-acre size limit (200 acres for natural biological hazards) are permitted on an individual timber sale basis after 60 days public notice, and review and approval by the Regional Forester.
- E. The established limits and exceptions do not apply to the size of areas harvested as a result of natural catastrophic conditions, such as insect and disease infestation or windthrow.
- F. Created openings will be adequately stocked with desirable tree species, which are approximately 5 feet in height, before the area will no longer be considered an opening for the purposes of determining limitations on the scheduling, locating, and calculating the size, of additional created openings.

V. *Two-aged System*

- A. Two-aged systems are designed to maintain and regenerate a stand with two age classes. The resulting stand may be two-aged or trend towards the uneven-aged condition as a consequence of both an extended period of regeneration establishment and the retention of reserve trees that may represent one or more age classes. The reserve trees provide structural diversity and a biological legacy. Two-aged management regimes

can produce stands of greater structural diversity than even-aged management. This method may be used where windthrow or dwarf mistletoe are not major threats or can be tolerated .

1. Retained patches or residual trees should not be scheduled for removal. The retained patches and residual trees will provide support for those organisms that require old forests.
2. Address safety issues by utilizing the guidelines in Reserve Tree Selection Guidelines, R10-MB-215, March 1993.

VI. *Uneven-aged Systems*

- A. Uneven-aged systems are methods of regenerating a forest stand, and maintaining an multi-aged/multi-layered structure, by removing some trees in all age groups and stratum either singly, in small groups, or in strips. Overstory density is regulated to avoid the suppression of understory trees and to maintain understory vigor. There is very little experience and research in using uneven-age methods in southeast Alaska's western hemlock-Sitka spruce forest type.
- B. All timber types on the Tongass National Forest may be harvested using uneven-aged silvicultural methods.
 1. Using adaptive management, test uneven-aged management where the interdisciplinary process determines the system is appropriate to meet the objectives and requirements of the Land Use Designation including the protection of excessively steep or unstable soils, visual resources, wildlife and fish, recreation, and for use of noncommercial wood products (fuelwood). Monitor results.
 2. Limit uneven-aged management systems to areas where yarding equipment suited to selective logging can be used.
- C. Single-tree selection is an uneven-aged silvicultural system. The single-tree selection method evaluates each tree within its age group and strata for its contribution to the desired characteristics of the multi-aged stand. Regeneration, intermediate cuttings and precommercial thinnings are usually done in one operation. Desired regeneration grows in the spaces created by the harvested trees. Harvested trees come from all strata and age groups.
 1. Single-tree selection is used to meet Land Use Designation objectives including the protection of excessively steep or unstable soils, visual resources, wildlife and fish, recreation, and for utilization of noncommercial wood products (fuelwood).
 2. Single-tree selection timber regeneration methods are generally limited to tractor or aerial systems suited to this type of selective logging.
- D. Group selection is an uneven-aged regeneration method. The group selection method prescribes the removal of small groups of trees (the opening diameter of which is approximately twice the height of the mature trees) to create openings in the stand. The uneven-aged stand created is actually a mosaic of small even-aged groups. The desired regeneration grows in the growing space created by the groups of trees harvested.
 1. Group selection is used to meet Land Use Designation objectives including the protection of excessively steep or unstable soils, visual resources, wildlife and fish, recreation, and for utilization of noncommercial wood products (fuelwood).
 2. Group selection methods are limited to areas that can employ yarding equipment suited to this type of logging.

VII. *Intermediate Treatment Methods.*

- A. These activities include those treatments that improve the composition, health, value and growth of a timber stand.

1. Precommercial thinning favors the dominant or selected species, that are more or less evenly distributed over the stand, by removing a varying proportion of the other species. Spacing will be based on management objectives.
 2. Release and weeding are used to free trees or groups of trees from more immediate competition by cutting or otherwise eliminating growth that is overtopping or closely surrounding it.
 3. Pruning increases tree value and allows more light to reach the forest floor, thus continues or creates the stand initiation and understory reinitiation stages.
 4. Commercial thinning is the removal of trees from an immature stand, primarily to accelerate the growth of the remaining trees, but also, by suitable selection, as a means of improving final species composition, size class distribution, and to capture volume that would be otherwise lost to decay and mortality. Intermediate harvest is being evaluated for its benefits for some species of wildlife.
 - a. Continue development and application of the Alaska Region Second-Growth Forest Management Program.
- B. Assess areas that have received precommercial thinning, release and weeding or pruning treatments to insure management objectives have been met.
1. Certify that the treatment met the prescription objectives. In the case of thinning, it normally means certifying that the stocking of desired residual trees meets prescribed standards.

VIII. *Salvage Harvest*

- A. Salvage cutting is the removal of dead trees or trees being damaged or dying due to injurious agents other than competition and is used to recover value that would otherwise be lost.
- B. Sale and utilization of dead, blown-down and other deteriorating timber will receive high priority in management areas where the harvest of timber is compatible with the area's management objectives. Salvage may include trees damaged by road construction.
- C. Trees salvaged in a Land Use Designation excluded from scheduled timber harvest (unsuitable forest land) will not be included as chargeable volume to the allowable sale quantity. For catastrophic events which occur on unsuitable timber lands, not withdrawn from harvest, consider an appropriate range of management alternatives to meet varying levels of resource protection and commodity outputs. These lands will not be substituted for suitable forest land.
- D. Beach log salvage often involves both state and National Forest System lands. A Memorandum of Understanding between the State of Alaska and the Forest Service on coordination of beach log salvage dated April 23, 1980 provides direction.
 1. The state and Forest Service will prepare combined beach log salvage sales. The party with the larger share of material will sell and administer the sale.
 2. Beach logs may be exported.
 3. Beach logs that are not merchantable will be designated for personal use whenever possible.
 4. Beach log salvage material is not chargeable to the annual allowable sale quantity.
- E. Where catastrophic events cause extremely heavy tree losses on the suitable timber base, commercial timber harvest will be given high priority to maximize utilization.
- F. Refer to the Riparian Standards and Guidelines for salvage in riparian areas.

IX. *Utilization Standards*

- A. Industrial wood products on the Tongass National Forest will be managed for quality sawtimber material.

1. Require utilization and optimum feasible use of wood material. Promote the use of wood for its highest value product commensurate with present and anticipated supply and demand.
2. Improvements in utilization will be made through sale preparation, appraisals, contract administration, and dissemination of research information.
3. Consult current regional direction for precise standards.

X. Requirement for Proportionality (Consult Tongass Timber Reform Act, Section 301.)

- A. Harvest a proportionate amount of old-growth timber by limiting the volume harvested over the rotation in Volume Classes 6 and 7, as defined in TLMP and supporting documents, so that the proportion of volume harvested in these classes within a contiguous management area does not exceed the proportion of volume currently represented by these classes within the management area. This requirement applies to the KPC long-term contract harvest only (Consult FSH 2409.18).

XI. Competitive Bidding and Small Business

- A. Private enterprise shall be encouraged to use National Forest timber resources.
 1. The Forest Service will plan sale offerings to encourage competitive bidding in a range of total sale volume and species that provides opportunities for purchasers.
 2. Consult annually on the amount of volume to be offered with the Small Business Administration.

XII. Unit Cards

- A. Unit cards should document mitigation and protection measures displayed and documented in NEPA documents.

XIII. Windthrow

- A. Special consideration will be required in the design of harvest units adjacent to Land Use Designations or other areas which limit or prohibit timber harvest activities. Where the chance of windthrow in adjacent stands is increased by timber harvest, measures will be taken to contain the windthrow within the Land Use Designation where timber harvest is allowed.

Commercial Sale Administration: TIM122

I. Contract Administration

- A. Administer timber sale contract provisions, post-sale measurement, and financial oversight of all sales.
 1. Frequency of timber sale inspection will be determined by the complexity of the timber sale and operator performance, with the objective being to ensure full contract compliance.
 2. Sale administrators will work with the other specialist(s) to ensure that the project goals are obtained.
 3. Consult with designated District and Area staff to determine BMP measurement and reporting requirements.

Other Forest Products

I. Free-use Program

- A. Make fuelwood available in areas accessible to the public consistent with LUD management objectives.

- B. Make special forest products available, such as berries, mushrooms, Sphagnum moss, cones, bark, Christmas trees, boughs, trolling poles, and transplants consistent with LUD management objectives. Integrate the use and availability of these forest products with historically used forest products.
- C. Address requests for green saw-timber as soon as feasible.
- D. Designate the timber planned for harvest.

II. *Commercial Program*

- A. Special Forest Product (SFP) harvest will be done in such a way that assures that each affected species will regenerate to its former density within reasonable timeframes and the original spatial distribution will be maintained within the stand.
- B. Permits shall be required for commercial collection of any SFP.
- C. Commercial harvest shall occur only where adequate quantities of the resource are available on harvestable sites.
- D. Selling units (bushels, pounds, sacks, etc.) for specific SFP's shall be consistent across the forest to make record-keeping, reporting, and monitoring more accurate and efficient.
- E. Collection of SFP's adjacent to trails and roads shall be avoided where scenic quality would be impaired. Collection should be no closer than 20-50 feet from the trail or road. Site-specific prescriptions will vary by class of trail or road.

Pesticide Use and Vegetation Management

I. Pesticide Use

- A. Pesticide use is not prescribed in the Forest Plan, but may be considered on a case-by-case basis. Biological, environmental, and economic costs and benefits of pesticide use are to be identified and weighed prior to Forest Service use of pesticides on the Forest.
- B. Pesticides will be employed only after such use has been evaluated in an environmental analysis, recommended for approval by the Integrated Pest Management Working Group, and approved by the Regional Forester.
- C. When pesticide use is judged necessary, selection and application will be based on the following guidelines:
 - 1. Those application methods and formulations will be used that are most effective in suppressing the pest, most specific to the target organisms, and least harmful to nontarget components of the environment.
 - 2. In operational pest management programs, only those pesticides that are registered in accordance with the Federal Insecticide, Fungicide and Rodenticide Act, as amended, will be used, except as otherwise provided in regulations issued by the Environmental Protection Agency or the Department of Agriculture.
 - 3. Application will be restricted to the minimal effective dosage that, when precisely applied to the target area at optimum times, will accomplish the resource management objectives.

Reforestation: TIM24

I. Site Preparation, Planting, Stocking

- A. This activity comprises all treatments and activities aiding the reestablishment of desirable tree cover following timber harvest.
 - 1. Prescribed burning may be used for preparing sites for planting, seeding, and for other resource needs; it may also be used for fuels management, when the wood residue cannot feasibly be used for other purposes.
 - 2. Examine all forest lands treated.
 - * No first year surveys are required if the silvicultural prescription anticipates natural regeneration.

- * Examine artificial seeding or planting treatments one and three years after treatment.
- * Stands will be certified as stocked, if the third-year survey indicates that the area meets stocking standards; except where permanent openings are created for wildlife habitat improvement, vistas, recreation uses and similar practices.
- * Prescribe artificial regeneration if the third-year survey indicates that natural regeneration is highly unlikely.
- * Schedule another survey no later than five growing seasons after harvest if the third-year survey indicates the area is very likely to be stocked, but more time is required to make this determination.
- * Certify that every unit which receives a final harvest meets or surpasses the stocking guidelines and certification standards (Consult Silvicultural Practices Handbook - FSH 2409.17) within the 5-year regeneration period established by law. A unit may be certified as adequately stocked at any time during this 5-year period. (See also the Monitoring Plan)
- * Certify that a planted or seeded area has attained a stocking level above a defined minimum in terms of number and distribution of acceptable species, whether planted, seeded, or natural.

TRAILS

Forest-wide Standards & Guidelines

Trail Activities: TRAI1

I. Opportunities

- A. Provide for a diversity of outdoor recreation trail and waterway opportunities that are appropriate for the Recreation Opportunity Spectrum (ROS) class and Land Use Designation. Include such activities as hiking, mountaineering, spelunking, cross-country skiing, snowmobiling, OHV use, motorized trailbike riding, mountain bike riding, motorboating, canoeing, and kayaking.
- B. Emphasize opportunities in all ROS classes, as applicable, for activities which are in harmony with the natural environment and consistent with the recreation role of the National Forest System lands in a given area.
- C. Locate, design, and operate trails to make the best use of available recreation opportunities. Establish trail objectives and associated management actions by examination of the interaction of all resource activities, opportunities inherently present, and the objectives of the Land Use Designation.
- D. Coordinate trail planning, location, design and operation with the recreation management goals and objectives of other national, state, local agencies, and private operations. Make an effort to provide loop trail opportunities through the integration of systems regardless of jurisdiction.
- E. Provide access to high quality recreation places with trail systems that will enhance the total experience of the user.
- F. Emphasize trail systems that offer the following opportunities as may be appropriate and feasible in a given area:
 1. Connected, multi-day trip opportunities for both land trails and water trails.
 2. Link trails with existing (or emerging) road systems.
 3. Alpine trail systems with quick access from saltwater anchorages, cabins, local communities, and resorts.
 4. OHV trail systems utilizing connections with existing road systems to form loop trips and access to recreation attractions.
 5. Loop trail systems in connection with recreation cabins.
 6. Access from local communities to snowline where snow trails are feasible.
 7. Heli-hiking trails within a reasonable distance (based on cost) from local communities and service centers.

Trail Administration: TRAI2

I. Inventory, Construction and Maintenance

- A. Maintain an inventory of existing trail systems which will assist in determining the desirability of retaining trails in their current locations, their contribution in meeting overall recreation objectives, and actions needed to bring the system up to desired standards and to maintain those standards. (Consult Forest Service Trails Management Handbook and Alaska Region Trail Construction and Maintenance Guide.)
- B. Construct, reconstruct and maintain trails and waterway facilities as part of the Forest transportation system.
 1. Prioritize and schedule trail construction and maintenance to meet public needs as follows:

- * Existing trails which are causing resource damage or to protect investments.
 - * Existing trails and waterways serving local community needs and tourist centers.
 - * Existing trails and waterways providing access to recreation cabins.
 - * Existing trails and waterways in Wildernesses.
 - * New trails and waterways which will serve local communities, tourist centers and resorts.
 - * New trails in Wilderness which will disperse use and are needed to help protect wilderness resources from degradation.
2. Provide trailheads in locations to allow access to the greatest number and types of trails practicable within an area. Consider use for both snow and snow-free trail access (during different seasons) from the same trailhead when practicable. Match the capacity of the trailhead with the desired capacity of the area being served.
 3. Construct and maintain trails to the standard appropriate for the type and amount of use desired in a given area. If the trail is to be used by multiple types of users, design and construct it to adequately and safely accommodate the most demanding or impacting type of use. (Consult FSH 2309.18.)
 4. Design and construct bridges to support the maximum expected snow and ice load, construction or maintenance equipment, and anticipated user equipment. Bridges must be appropriate for the prescribed ROS class and meet the adopted Visual Quality Objective for the area.
 5. Plan and provide trails for a variety of accessibility challenge levels, appropriate to the ROS setting.
 6. Use volunteer, human resource, and cooperative programs to augment trail construction and maintenance budgets and to provide land use education opportunities for the public. Integrate these resources into the total trail management system. Encourage local organizations to "adopt a trail" to provide needed maintenance on a continuing basis. Crews must be under the supervision of a qualified trail supervisor. Help develop qualified supervisors in volunteer organizations and other cooperative programs. (Consult FS Trails Management Handbook.)
- C. Trails and associated waterways within Land Use Designations and recreation places often become the principal tools for achieving management objectives. Construct and maintain trails and related facilities so that they contribute to desired conditions and appear to be an appropriate part of the forest setting and not an intrusion upon it. (Consult FS Trails Management Handbook.) Use Best Management Practices (Chapter 10 of the Soil and Water Management Handbook, FSH 2509.22 and Appendix C of this Plan) to reduce the effects of trail activities on the beneficial uses of water.
1. Develop and incorporate in project plans an erosion control and stabilization plan for stabilizing all human-caused soil disturbances.
 2. Locate trail crossings at right angles to streams and at suitable bridge locations. Design and maintain trail treads to protect riparian values and minimize soil erosion.
 3. Locate stream crossings only in stable reaches. Design crossings of V-notched drainages to prevent debris jamming. Drainage structure gradients should follow natural gradient for non-fish streams where needed to prevent downstream erosion. Require brow logs for dirt and rock-surfaced log stringer bridges and turnpike sections to contain materials and prevent entry of sediment into the stream. For further location and design guidance consult the Trails Handbook and Drainage Structures Handbook.
 4. Permit construction of trails parallel to and crossing fish streams only where objectives for the management of fish habitat can be met. Where trails are located near fish streams, minimize the introduction of sediment during clearing, construction, and operation activities. Sidecasting and waste materials must not encroach upon the stream course and as much undisturbed groundcover as practicable shall be left between the trail and the stream. Complete endhaul of waste material will be required

where trails are located near fish streams when there is the probability of downhill movement of the material into the stream. Fill will be allowed in fish streams only when considered through the IDT process to be the best alternative.

5. Meet fish passage direction at all locations where trails cross fish streams. Contracts will specify permissible uses of motorized equipment and the timing of trail construction activities based on agreement with the Alaska Department of Fish and Game and as determined by environmental analysis and appropriate line officer approval.

TRANSPORTATION

Forest-wide Standards & Guidelines

Transportation System Inventory: TRAN111

I. Inventory Updating and Maintenance

- A. Maintain an inventory of all forest development transportation facilities, including roads, bridges and major culverts (including those which require fish passage), log transfer facilities, and airfields. (Consult FSM 7710.)
 - 1. Use the Transportation Management System (TMS), or subsequently developed and approved system, as the data management system for the forest road, bridge, and major culvert inventory.
 - 2. Update changes on transportation maps annually. Map all roads, as an historical record, regardless of administrative classification.

Road and Bridge Administration: TRAN122

I. Road Management

- A. Manage Forest Development Roads and bridges based on Road Management Objectives using the criteria listed below:
 - 1. Keep Forest Development Roads open to public motorized use unless:
 - * Use conflicts with Land Use Designation objectives, such as the need to protect critical habitat or to retain a non-motorized recreation experience.
 - * Financing is not available to maintain the road or manage the associated use of adjacent lands.
 - * Use causes unacceptable damage to roadway or adjacent soil and water resources.
 - * Use results in unsafe conditions.
 - * There is little or no public need.
 - 2. Manage road use by seasonal closure if any of the following conditions are anticipated:
 - * Seasonal conflicts with Land Use Designation objectives, such as the need to provide security for wildlife during critical times of the year.
 - * Traffic hazards or unacceptable damage to roadway or adjacent soil and water resources due to weather or seasonal conditions.
 - 3. Restrict public use by temporary closure if:
 - * Concurrent use between commercial and other traffic is unsafe.
 - * The potential for damage to equipment from vandalism is high.
 - 4. Allow administrative use of closed or restricted roads when needed for emergency use or uses otherwise deemed appropriate by the Forest Supervisor.
- B. Consider the opportunities to manage road use cooperatively with applicable state and other Federal agencies to meet fish and wildlife management objectives.
- C. Communicate road closures to the public in a positive manner, stressing the reason for closure rather than denial of access.

II. Permitting

- A. Authorize, by issuing a road use permit, appropriate commercial use of Forest Development Roads not otherwise authorized by a Forest Service contract, easement, special use authorization, operating plan, or other similar agreement. Include investment

sharing and maintenance requirements and rules of use as terms of the permit. (Consult FSM 7730 R-10 supplement).

- B. Obtain needed permits for the construction of bridges across navigable waters, and for log transfer facilities.

III. *Cost Share Management*

- A. Administer cost-shared roads in accordance with the terms of the agreement between the Forest Service and the cooperators.
 - 1. Collect data about traffic volume and types of users on Forest Development Roads as needed to determine investment sharing and commensurate maintenance responsibilities.

Transportation Improvement Planning: TRAN212

I. Planning

- A. Plan transportation facilities that will efficiently integrate and achieve Forest Plan direction, including consideration of landscape scale ecological objectives. Take advantage of resource opportunities recognized during project scoping, such as providing access to a recreation attractor or mineral deposit.
- B. Direct the orderly development and management of the transportation system and ensure the documentation of decisions affecting the system.
- C. Coordinate transportation corridor development with the applicable Canadian, Federal, state, and local government agencies and private landowners. The Forest Service will not make road connections between communities or emerging communities without the participation and collaboration of state and local governments, communities, and affected individuals.
- D. During project planning, identify resource concerns and site specific mitigation measures. Clearly document these mitigation measures to facilitate project implementation and monitoring.

II. Road Management Objectives

- A. Based on Forest Plan direction and project interdisciplinary analysis, develop road management objectives for all Forest Development Roads to facilitate future activities. (Consult FSM 7710.)
 - 1. Document the intended purpose of the road in the road management objectives, and have the objectives signed by a line officer.
 - 2. Include in road management objectives, where available, any ecological objectives which road construction, operation, or maintenance can help to achieve.
 - 3. Include in road management objectives the criteria for design (Road Preconstruction Handbook), operation and maintenance (FSM 7730).

Road and Bridge Preconstruction: TRAN214

I. Road Standards

- A. Perform route or site selection, location, geotechnical investigations, survey, and design to a technical level sufficient to meet the intended use and commensurate with both ecological objectives and the investment to be incurred. Ensure consistency with Forest-wide standards and guidelines and Best Management Practices. (Consult FSH 2509.22.)
 - 1. Consider each of the following factors when determining standards for the intended uses:

- * cost of transportation (including operation and maintenance)
 - * safety
 - * intended purpose and ecological objectives
 - * impacts on land and resources on both local and landscape points of view.
- B. Construct roads in the most cost-effective manner consistent with Land Use Designations, ecological objectives, and intended purposes. Use the Forest Highway Program (consult FSM 7740) and joint financing with other state and Federal agencies to construct roads to a higher standard, when determined appropriate to meet road management objectives.
 - C. Evaluate each proposed timber sale road construction or reconstruction project to determine the least cost road (considering cost of construction, maintenance, and hauling) which meets the intended purpose. Compare the road construction standard required for the immediate harvest and removal of timber with that needed to meet long-term road management objectives. When a higher standard facility is required to meet multiple-use objectives or for future management, include supplemental funding (Forest Service funds) to construct the higher standard. The purchaser of National Forest timber shall not bear that part of the cost necessary to meet the higher standard. (Consult FSM 2430.)
 - D. Cooperate with the Alaska Department of Transportation and Public Facilities and the Federal Highway Administration in the administration of the Forest Highway Program. Provide nominations of routes to be upgraded and encourage their transfer to state jurisdiction, in order to provide safe facilities and adequate maintenance between communities linked by the Forest Development Transportation System. (Consult FSM 7700.)
 - E. Build and manage roads primarily to meet public needs. Include considerations for a full range of access forms such as cars, trucks, bicycles, off-highway vehicles, and foot travel. Where roads will provide potential access to private or State of Alaska lands, recognition of the route as a potential state route should influence location and alignment standards to avoid future duplication of construction. Such consideration must not, however, be considered justification for a higher cost road than is necessary for Forest Service resource management.
 - F. Consider conservation of petroleum energy supplies in the location, design, and operation of the transportation system.

II. Location and Design

- A. Locate and design Forest Development Roads in a manner which will utilize both local and landscape scale ecological objectives, as well as Best Management Practices. Seek to minimize effects on wildlife and fish habitat, riparian habitat, and wetlands. Minimize displacement of wildlife and fish populations. (Consult the Forest Service Road Preconstruction and Drainage Structures Handbooks, and the Region 10 Soil and Water Conservation Handbook for detailed location and design guidance.)
 1. Incorporate erosion control and stabilization measures in project plans for stabilizing all human-caused soil disturbances. Assure Best Management Practices can be implemented in construction, operation, and maintenance of the road.
 2. Avoid construction on highly unstable uplifted marine sediment as identified in the soil resource inventory (SRI) or use geotechnical engineering designs to maintain stability. Obtain line officer approval after on-site consideration and stability analysis.
 3. Roadway on slopes in excess of the soil's internal angle of friction, as identified in SRI's, requires geotechnical investigation and appropriate designs. Obtain line officer approval after site-specific investigation has been conducted to determine degree of risk and the potential effects from mass wasting. Conduct stability analysis to determine the most effective and lowest cost method of reducing the risk of roadway failure. Consider constructing full bench roads and end-hauling excess excavation. End-hauled excess excavation shall be deposited at appropriate locations that prevent the excess material from entering streams. Stabilize and revegetate

end-hauled materials in accordance with prescribed erosion control measures specified in the project plan.

4. Locate stream crossings in stable reaches, unless mitigation measures are taken. Design crossings of V-notched drainages to prevent debris jamming. Design and install culverts to prevent downstream erosion. When embankment material is used for surfacing native log bridges, install side logs, wood chinking, and a geotextile fabric blanket prior to embankment placement to contain surfacing materials and prevent entry of sediment into the stream.
 5. Avoid locations of roads near fish-bearing streams. Seek locations which avoid fish streams, crossing streams when other locations are not feasible and fish habitat can be protected. Where roads are located near fish streams, avoid the introduction of sediment during clearing, construction, and operation activities. Excess excavation material must not encroach upon the stream course. Leave as much undisturbed ground cover between the road and the stream as feasible. Require complete endhaul of excess excavation where there is the probability of downhill movement of that material into the stream. Place fill into fish streams only when it is considered by the environmental analysis process to be the best alternative, and following consultation with the Alaska Department of Fish and Game.
 6. Meet fish passage direction at all locations where roads cross fish streams. (Consult Forest-wide Standards and Guidelines for Fish Habitat Planning, FISH112.) Specify permissible uses of heavy machinery and the timing of road construction activities in contracts based on consultation with the Alaska Department of Fish and Game and as determined by interdisciplinary analysis and on approval by the appropriate line officer.
 7. In areas where erosion due to heavy rains on disturbed soil is a resource protection concern, provide special project specifications that prescribe the maximum distance beyond the end of embankment placement that pioneering operations (preliminary clearing of the road right-of-way) may occur.
 8. Slope drainage ditches along the roadbed to the nearest relief culvert. Discharge from road ditches should be cross drained to filter on natural forest floor, rather than flowing directly into streams.
 9. Design bridge abutments to minimize disturbances to streambanks.
 10. Promptly rehabilitate temporary roads in accordance with erosion control and stabilization measures prescribed in the project plan. Establish vegetation on roadbeds of temporary roads within 10 years following termination of use.
 11. Design roads to conform to Eagle MOU, or obtain variances.
 12. Avoid ditching across wetlands if surface water control is not required for safety or protection of the running surface.
- B. Design and construct roads to conform to the Adopted Visual Quality Objectives.
1. For guidance, consult National Forest Landscape Management Handbook, Volume 2, Chapter 4: Roads.
 2. Consider the following practices during road design on, or seen from, *Visual Priority Travel Routes and Use Areas* (see Appendix F):
 - * Vegetating slopes seen from the road.
 - * Providing "planting pockets" or terraces on slopes, where needed.
 - * Minimizing landform modifications through road location and design.
 - * Considering vegetative treatment of clearing edges such as feathering or free-flowing, undulating edge to break up the straight line.
 - * Cleaning-up roadsides after construction on all roads receiving general public use or expected to have such use.
- C. Plan, design, and construct roads to minimize conflicts or mitigate conflicts with existing facilities such as trails, pipelines, utilities, and cabins.

III. *Wetlands, Floodplains, Estuaries, Tidal Meadows*

- A. Locate and design Forest Development Roads to minimize impact to soils, water, and associated resources in accordance with Executive Orders 11988 and 11990 (Floodplain Management and Protection of Wetlands). Avoid development activities, to the extent feasible, in areas of important wetland value identified during project interdisciplinary team analysis.
 - 1. Do not construct roads across alluvial floodplains, mass wastage areas, or braided stream bottomlands unless an interdisciplinary team investigation indicates that individual site-specific mitigation can be applied to assure protection for the soils, water and associated resources.
 - 2. For roads or other facilities approved for location near estuaries, fills and excess excavation materials must not encroach upon such areas unless recommended after project interdisciplinary team analysis.
 - 3. Use the following criteria for siting water-dependent transportation facilities, other than log transfer facilities, such as docks, landings, floats, and boat ramps:
 - * Locate far enough from known anadromous fish streams to avoid significant interference (generally a minimum of 300 feet away).
 - * Locate far enough from tideflats or subtidal beds of aquatic vegetation to avoid significant impairment (generally a minimum of 300 feet away).
 - * Restrict the filling of intertidal and subtidal areas to those sites having the least value as habitat for marine organisms and vegetation, unless interdisciplinary team and interagency (FWS, NMFS, and ADF&G) joint analysis determines that for other resource reasons it is desirable to fill the more productive site.
 - * Avoid areas with established uses, such as areas used for commercial and sport fishing, hunting, and anchorages for commercial and recreational vessels, unless interdisciplinary review determines that location of sites may be accomplished in a manner that is compatible with such uses.
 - * Assure that all permits, leases, and accesses are acquired. Work cooperatively with other agencies such as National Marine Fisheries Service, U.S. Fish and Wildlife Service, Department of the Army Corps of Engineers, Alaska Department of Fish and Game, and Alaska Department of Natural Resources on these efforts.

IV. *Quarry and Borrow Sites*

- A. Locate and design quarry (shot rock pit) and borrow (gravel pit) sites and time their use to minimize the impacts upon other resource values, existing facilities, and to meet Land Use Designation objectives. During the design phase, consider the potential for use of the pit to improve fish habitat and dispersed recreation opportunities.
 - 1. Plan rock quarries and borrow pits through the interdisciplinary team process. On potentially landslide-prone areas, blasting will be avoided during or within 72 hours following a 2-year 24-hour storm (total amount of expected rainfall from a storm event that would statistically occur once every two years, in Alaska, this would probably equate to about 4 inches of rain in one day), or until determined that the soil groundwater level does not constitute a high-risk situation. Where other sources are available, do not locate borrow pits on landslide-prone areas. Where no other feasible alternative exists, strip quarries of their overburden and haul excavated material to a stable location. Stabilization of the overburden material will conform to the erosion control and stabilization measures developed during the planning of the quarry or borrow pit.
 - 2. Design quarry and borrow pits to minimize the possibility of sediment being carried into watercourses by run-off. Quarry and borrow pits will be located away from watercourses, unless project interdisciplinary team analysis determines that site-specific mitigation measures can be applied to assure protection of the soils, water and associated resources. Whenever locations near streamcourses or other water bodies are recommended, erosion control measures must provide for drainage

from materials sites to run-off through a filter strip or buffer or sediment basin prior to entering a water body, unless the quarry or borrow pit is to be used for fish habitat management.

3. Limit blasting that adversely effects fish spawning beds to times when eggs and alevins are not vulnerable. Safe times and distances will be determined on a site-by-site basis after consultation with agencies such as:
 - * Alaska Department of Fish and Game
 - * National Marine Fisheries Service
 - * U.S. Fish and Wildlife Service
4. Do not allow the use of intertidal gravel as a source of borrow.
5. Drain borrow pits and quarries no longer needed, unless developed for fish or waterfowl habitat, and revegetate mineral soil.
6. Consider screening borrow pits, quarries and access roads along sensitive travel routes.

V. Log Transfer Facilities Siting, Construction, Operation, and Monitoring

- A. Site log transfer facilities in locations which will best avoid or minimize potential impacts on water quality, aquatic habitat, and other resources. During site analysis, cooperate with state and Federal agencies to assemble required data and evaluate alternatives.

When considering alternative siting, construction, and operation of log transfer facilities, use both regulatory guidelines established by the Clean Water Act (40 CFR Part 230), and the Alaska Timber Task Force Log Transfer Facility Guidelines (See Appendix G). All log transfer facilities are evaluated by regulatory agencies using these two sets of guidelines (items 1 and 2 below).

1. The *Log Transfer Facility Siting, Construction, Operation and Monitoring/Reporting Guidelines* (1985), developed by the Alaska Timber Task Force (ATTF) Log Transfer Facility Guidelines Technical Subcommittee, are used by the regulatory agencies in evaluating applications for meeting requirements of the Clean Water Act. These guidelines are to be used when evaluating proposals for log transfer and associated facilities. The introduction to the guidelines say "The objective is to consider all the guidelines and develop the "best mix" which allows the activities to proceed while meeting all applicable statutory and regulatory requirements". The ATTF Guidelines may be found in Appendix G of this document.
2. Alternatives for siting, construction, and operation must also be evaluated using the 404(b)(1) process of the Clean Water Act and the requirements of 40 CFR 230.12(a)(3) to determine if:
 - (i) There is a feasible alternative to the proposed discharge that would have less adverse effect on the aquatic ecosystem, so long as such alternative does not have other significant adverse environmental consequences; or
 - (ii) The proposed discharge will result in significant degradation of the aquatic ecosystem...; or
 - (iii) The proposed discharge does not include all appropriate and feasible measures to minimize potential harm to the aquatic ecosystem; or
 - (iv) There does not exist sufficient information to make a reasoned judgment as to whether the proposed discharge will comply with these Guidelines.

The "proposed discharge" refers to the discharge of logs, bark, any other dredged or fill material, and storm water into the aquatic systems.

- B. Use the additional following guidelines, consistent with the 404(b)(1) process and *Log Transfer Facility Siting, Construction, Operation and Monitoring/Reporting Guidelines* (1985) as described in Part A above, when evaluating alternatives for log transfer. The guidelines described in Part A take precedence over these guidelines.

1. Minimize the number of log transfer facilities and storage areas by selecting locations that will accommodate future logging without requiring additional transfer or storage sites.
2. Give preference to locating log transfer facilities along straits or channels when feasible. When located in bays, large bays are preferred to small bays, deep bays preferred to shallow bays. Sites near the mouths of bays are preferred to sites near the heads of bays. Give preference to sites where marine vegetation is sparse or absent over sites with vegetation.
3. Avoid siting log transfer, rafting, and storage facilities in areas with established commercial, subsistence, and sport fishing activity, high levels of recreation use, areas of high scenic quality, or documented concentrations of species commonly pursued by commercial, subsistence, and sport fishers.
4. When an existing log transfer facility in a less than optimal location is considered for reconstruction, perform environmental analysis to determine whether adverse impacts of relocating the facility exceed those resulting from continued use at the existing site.
5. Site locations that have foundation materials, determined by appropriate subsurface investigation, that can economically and effectively support the structure through the duration of its design life.
6. Consider the visual impact of a proposed structure in the selection of alternative designs. In areas of high visual sensitivity emphasize designs which would be less likely to dominate the landscape (such as a low-angled slide rather than a bulkhead design).

Road and Bridge Construction/Reconstruction: TRAN22

I. Construction

- A. Construct Forest Development Roads and bridges that provide the stability and durability appropriate for their intended use as documented in the road management objectives, and which are necessary for completion of the management activities identified in the Forest Plan implementation schedule.

II. Reconstruction

- A. Reconstruct roads and bridges in accordance with the following limitations.
 1. Limit reconstruction activities to:
 - * Correction of unsafe conditions that cannot be corrected by traffic restriction.
 - * Repair of situations where use will cause environmental impacts inconsistent with Forest Plan direction.
 - * Upgrading of a facility that was not originally constructed to accommodate current or anticipated use.
 - * Repair of surfacing, bridges, and log transfer facilities, where analysis clearly shows an economic advantage to protect the investment.
 - * Removal of vegetation, repair of surfacing, repair or replacement of culverts and bridges where necessary to bring roads up to timber haul standards.

Road Maintenance: TRAN23

I. Maintenance levels, conditions, and inspections

- A. Operate and maintain Forest Development Roads in a manner which meets the road management objectives and ecological objectives for the landscape where the road is located. Maintain roads to meet Best Management Practices (BMP's) regardless of the methods used to obtain the maintenance work. Manage roads to provide cost-effective support to Land Use Designation objectives and safe travel to users of the system, while protecting the environment, adjacent resources, and the public investment. (Consult the Transportation System Maintenance Handbook.)

1. Consider protection needs of adjacent resources when planning and conducting road maintenance activities. Where consistent with road management objectives, consider incorporating design features which will protect water quality by minimizing long term maintenance needs (e.g. driveable dips adjacent to culverts, oversized culverts, outslowing roads).
 - * Maintain road running surfaces and bridge decks to minimize the amount of road surface sediment entering adjacent streams and lakes.
 - * Maintain ditches and culverts to keep water effectively flowing, and minimize sediment entering streamcourses.
 - * Provide for the disposal of materials collected during road maintenance (soil, rock, and debris) in a manner that minimizes sediment entering streams and lakes and meets Land Use Designation objectives (particularly those regarding visual quality).
 - * During snow plowing operations, do not use bodies of fresh water as disposal sites for snow (and accompanying road surface sediments).
2. Perform Condition Surveys in accordance with criteria set forth in the Soil and Water Conservation Handbook. The intensity of survey will be commensurate with the risk of structure failure. Itemize deficiencies needing correction and present recommendations for corrective action.
3. Inspect bridges at frequency and standards specified in FSM 7730.
4. Implement requirements of the Forest Service Highway Safety Program (consult FSM 7730), which include recording the location of all known accidents and identifying locations, design, and operating features that are potential high hazards. Prioritize hazards for correction based on traffic volume, traffic mix, and degree of hazard. Program the elimination of identified hazards on a systematic basis, and as funding permits.
5. Use of traffic control devices will be in accordance with the guidelines contained in the Manual on Uniform Traffic Control Devices (U.S. Department of Transportation, Federal Highway Administration, Publication Number FHWA - SA-89-006; HTO-21/2-89 (15M)P.)

WETLANDS

Forest-wide Standards & Guidelines

Wetlands: WET

I. Objectives

- A. Avoid alteration of, or new construction on wetlands, wherever there is a practicable, environmentally-preferred alternative, considering the functions and values of wetlands as well as other non-wetland ecosystems in the project area. Practicable alternatives take into consideration costs, existing technology, and logistics in light of overall project purposes. 40 CFR 230.3(q).
- B. Minimize the loss of high value wetlands and the adverse impacts of land management activities on wetlands. Consult Executive Order 11990 and BMP 12.5 for guidance on wetland protection.
- C. Seek to maintain the natural and beneficial functions and values of wetlands.

II. Inventory and Evaluation

- A. Use the most current technical criteria for wetland identification and delineation. Consult the Federal Manual for Identifying and Delineating Jurisdictional Wetlands, 1987 (or its revision), as appropriate.
- B. Develop data on wetlands values and functions as needed for watershed analysis and project planning.
- C. Evaluate the hydrologic, water quality, and habitat functions of wetlands and determine their biological significance and scarcity at the appropriate landscape scale.

III. Land Use Activities

- A. The discharge of dredged or fill material onto wetlands is regulated under Section 404 of the Clean Water Act which is administered by the Corps of Engineers (COE) and the Environmental Protection Agency (EPA). Certain categories of activities are exempt from regulation while others may be permitted (refer to 33 CFR 323.4 Part 330 Appendix A 325). Consult with COE if the terms of exemption do not clearly apply to the activity in question. The following activities are generally exempted from regulation:
 - * normal forestry activities such as minor draining and harvesting
 - * constructing and maintaining drainage ditches
 - * constructing forest or mining roads
 - * maintaining or reconstructing structures that are currently serviceable
 - * constructing temporary sedimentation basins in uplands
 - * activities authorized by Section 208(b)4 of the Clean Water Act.
- B. Consistent with the Clean Water Act, as amended, use BMPs (FSH 2509.22) in all management activities which could affect water quality of wetlands. BMPs are intended to assure that flow and circulation patterns, and chemical and biological characteristics of water are not impaired. (BMPs are summarized in Appendix C.)
- C. Before issuing authorizations, leases, easements, rights-of-way or exchanging lands containing wetlands, identify uses that are restricted under identified Federal, state or local wetlands regulations. Incorporate appropriate restrictions, where necessary, to protect or minimize wetland impacts, or withhold such properties from exchange.
- D. Cooperate with state and Federal agencies having overlapping resource management responsibilities for wetlands, including the Alaska Department of Fish and Game, Alaska Department of Environmental Conservation, Alaska Division of Governmental Coordination, U.S. Army Corps of Engineers, U.S. Environmental Protection Agency, National Marine Fisheries Service, and the U.S. Fish and Wildlife Service.

WILDLIFE

Forest-wide Standards & Guidelines

Wildlife Habitat Planning: WILD112

I. Coordination/cooperation with other Agencies, Institutions and Partners

- A. Coordinate with the Alaska Department of Fish and Game, other state agencies, the National Marine Fisheries Service, the U.S. Fish and Wildlife Service, tribal governments, and other cooperators and partners during the planning of activities that may affect wildlife.
 - 1. Each administrative area should meet at least annually with state and Federal wildlife agencies to review resource activities, and schedule work needing coordination.
 - 2. Seek to maintain memoranda of understanding with appropriate state, Federal, and local agencies and associations.
- B. Emphasize management for indigenous wildlife species and natural habitat except in cases where the Forest Service, in cooperation with the Alaska Department of Fish and Game and U.S. Fish and Wildlife Service, find desirable alternatives. Special consideration will be given to the habitat of sensitive, threatened, and endangered species of plants, wildlife, and fish.
- C. Coordinate wildlife habitat surveys, studies, plans and improvement projects with the Alaska Department of Fish and Game, U.S. Fish and Wildlife Service, and other appropriate state, Federal, tribal, local and private agencies. Use the Sikes Act authorities for cooperative work with the state. Use agreements and other partnerships to cooperate with other partners.
- D. Coordinate with the Alaska Department of Fish and Game in development of state strategic plans and population goals and objectives for wildlife species.
- E. Provide habitat information to the Alaska Department of Fish and Game to assist in correlating hunting seasons, permits, and bag limits to on-the-ground habitat conditions so that population and habitat objectives can be achieved.

II. General Habitat Planning/Coordination

- A. Recognize as wildlife habitat, areas of land and water which can contribute to achieving wildlife objectives for consumptive and non-consumptive uses.
- B. Provide the abundance and distribution of habitat necessary to ensure that viable and healthy populations of all existing native, and desirable introduced, species are well-distributed and maintained over time.
- C. Cooperate with the state in managing vehicle, boat, and other human use (e.g. hunting and fishing seasons and bag limits) as necessary to achieve wildlife objectives, recognizing the access provisions of ANILCA. Emphasize management to reduce human disturbance in high value habitat areas and during critical periods of wildlife use.
- D. Maintain an Area wildlife program schedule which includes anticipated wildlife habitat and population inventory needs, monitoring requirements and proposed habitat improvement and maintenance projects.
- E. Use management indicator species to evaluate the potential effects of proposed management activities on wildlife habitat. Use the following guidelines to select the appropriate indicators for individual projects.
 - * Forest Plan Management Indicator Species.
 - * MIS recommended for the Region. (Consult the USDA Forest Service publication *Wildlife and Fisheries Habitat Management Notes -- Management Indicator Species for the National Forest Lands in Alaska*, publication R10-TP-2.).

- * Sensitive Species designated by the Regional Forester subject to FSM 2670.
 - * Federal or State-listed threatened or endangered species.
 - * Candidate Category 1 or Species of Concern as identified by the U.S. Fish and Wildlife Service.
 - * Species having significant economic value. Normally these species are those commonly hunted or trapped, or which have a high non-consumptive value (species sought after for viewing).
 - * Species which have the potential to be seriously and adversely affected by the proposed project and are not adequately represented by the above management indicators.
- F. Develop habitat capability models for any or all of the above listed management indicators to systematically assess the impacts of proposed projects for project level analysis. Periodically review and update models to reflect the most current habitat relationships and habitat modeling technology.
- G. Non-indigenous species are incompatible with Wilderness values and will not be introduced into wilderness.
1. Introductions of non-indigenous species into nonwilderness areas will be conducted in cooperation with the Alaska Department of Fish and Game.
 2. Cooperate with the Alaska Department of Fish and Game to manage existing populations of non-indigenous species to prohibit or limit their dispersal into Wilderness areas. Where non-indigenous species exist in wilderness, management includes conducting inventories and studies to assess the potential impacts of introduced species on the sustainability of native plant and animal communities. If adverse impacts are discovered, consider control or removal of non-indigenous individuals or populations.
- H. When population or habitat declines for a plant or animal species or subspecies indicates that long-term persistence is at risk, evaluate the particular species for designation as a Regional Sensitive Species by the Regional Forester.

III. *Habitat Improvement Planning*

- A. Identify habitat improvement projects to meet wildlife habitat and population objectives.
1. Consider the following factors to assess habitat improvement project opportunities and priorities:
 - * To meet state wildlife population objectives.
 - * To meet subsistence use needs.
 - * Existing habitat in poor condition compared to its potential.
 - * Habitat with a history of receiving high levels of use.
 - * Treatments with a favorable benefit/cost ratio.
 2. Use silvicultural practices, where applicable, to accomplish wildlife habitat objectives.

IV. *Sitka Black-tailed Deer Habitat (ALTERNATIVES 1,3,4,5, and 6 ONLY)*

- A. Habitat management objective
1. The objective is to maintain deer habitat capability sufficient to meet the needs of sport and subsistence hunters and maintain a resilient prey base for predators.
- B. Habitat Conservation
1. Assess deer habitat capability within Wildlife Analysis Areas relative to the demand/use of the deer resource by sport and subsistence users. Use the most recent version of the interagency deer habitat capability model to determine current and projected deer habitat capability. Deer demand/use is the mean annual deer harvest within WAA's from 1987-1994.
 2. Maintain all current total deer habitat capability in WAA's where the deer demand/use (as defined above) is greater than 20% of the total deer habitat capability.

3. Seek to maintain important deer winter range in WAA's where average deer harvest represents 10%-20% of deer habitat capability. Important deer winter range is defined as acres with deer habitat suitability scores in the 25th percentile or higher in each WAA based upon the most recent version of the interagency deer habitat capability model.
4. In WAA's where mean annual hunter deer harvest is less than 10% of deer habitat capability, no specific deer habitat protection measures are prescribed.

IV. *Sitka Black-tailed Deer Habitat (ALTERNATIVES 2,7,8 AND 9 ONLY)*

1. Identify important deer winter range in project level analysis.
2. Assure interdisciplinary involvement and consideration of deer winter range in project planning and in the environmental analysis process.

V. *Bald Eagle Habitat*

- A. *The Bald Eagle Protection Act* provides for special management for the bald eagle. Manage bald eagle habitat in accordance with the 1990 Interagency Agreement established with the U.S. Fish and Wildlife Service (or an amended agreement) to maintain habitat to support the long-term nesting, perching, and winter roosting habitat capability for bald eagles. Coordinate with the U.S. Fish and Wildlife Service for bald eagle habitat management.

VI. *Bear Habitat Management*

- A. Continue to implement strategies, in cooperation with the Alaska Department of Environmental Conservation, Alaska Department of Fish and Game, cities, and boroughs, which prevent habituation of bears to human foods/garbage and reduce chances of human/bear incidents. Strategies that can be used to reduce human/bear incidents include:
 1. Phasing out and rehabilitating existing open garbage sites on National Forest land. Establish timetables for phase out and rehabilitation in cooperation with appropriate state agencies (also see Lands Forest-wide Standards and Guidelines on sanitary landfills).
 2. Requiring incinerators and/or other bearproof garbage disposal methods at camps, recreation sites, and special use authorizations in bear habitats.
 3. Seeking to locate seasonal and permanent camps, recreation facilities, mineral exploration and operational facilities, log dumps and transfer facilities, where applicable to the Land Use Designation, more than 1 mile from sites of important seasonal brown bear concentrations to reduce chances of bear-human confrontations, where feasible.
 4. On Forest Service approved projects and special use authorizations in brown bear habitat, minimizing adverse impacts to the habitat and seeking to reduce bear-human conflicts. Specific plans could include seasonal restrictions on activities and other measures determined on a case-by-case basis.
 5. Maintaining an aggressive public education program on bear behavior to reduce the number of human/bear incidents.
 6. Requiring storage of human food in ways to make it unavailable to bears to reduce habituation of bears and reduce human/bear incidents,
- B. Maintain a buffer of productive old growth forest on both sides of important and traditional brown bear foraging habitats to provide cover during feeding, among bears, and between bears and humans. These are generally Class I anadromous fish streams within the MM (Moderate Gradient/Mixed Control) and FP (Floodplain) riparian channel process groups. Consider the combination of brown bear foraging behavior and stream channel morphology to identify probable foraging areas. Manage human activity in these areas during concentrated brown bear use, generally the July/August salmon spawning period, to reduce the likelihood of human/brown bear incidents.

C. Brown Bear Road Management Objective:

Manage roads where concentrations of brown bear occur to minimize human/bear interactions and to ensure the long-term productivity of brown bears.

- * Minimize human/bear interactions to limit brown bear mortality from both illegal kills and defense of life and property. Work with the Alaska Department of Fish and Game to develop and implement a brown bear management program which considers both access management and season and bag limits to manage brown bear mortality rates within acceptable levels.
- * Maintain the historic coastal access for recreation and subsistence use of the brown bear population.
- * Travel corridors used by bears between important seasonal sites should be identified and maintained.

D. Cooperate with the State to develop sites for safe public brown bear viewing opportunities.

VII. *Marine Mammal Habitats*

A. Provide for the protection and maintenance of harbor seal, Steller sea lion and sea otter habitats.

1. Ensure that Forest Service permitted or approved activities are conducted in a manner consistent with the *Marine Mammal Protection Act*, the *Endangered Species Act*, and National Marine Fisheries Services guidelines for approaching seals and sea lions. "Taking" of marine mammals is prohibited; "taking" includes harassment, pursuit, or attempting any such activity.
2. Locate facilities and concentrated human activities requiring Forest Service approval as far from known marine mammal haul outs, rookeries and known concentration areas as feasible. The following distances are provided as general guidelines for maintaining habitats and reducing human disturbance:
 - * Locate camps, log transfer facilities, campgrounds and other developments (where allowed by the Land Use Designation) 1 mile from known haul outs, and farther if the development is large.
 - * Individuals associated with Forest Service permitted or approved activities will not intentionally approach within 100 yards, or otherwise intentionally disturb or displace any hauled-out marine mammal.
 - * Dispose of waste oil and fuels off-site as regulated by the Alaska Department of Environmental Conservation.
3. Cooperate with the State and other Federal agencies to develop sites and opportunities for the safe viewing and observation of marine mammals by the public. Maintain a public education program explaining forest management activities related to marine mammals in cooperation with state and other Federal agencies.

VIII. *Seabird Rookeries*

A. Provide for the protection and maintenance of seabird (marine bird) rookeries.

1. Locate facilities and concentrated human activities requiring Forest Service approval as far from known seabird colonies as feasible. The following distances are provided as general guidelines for maintaining habitats and reducing human disturbance:
 - * For aircraft flights on Forest Service permitted or approved activities, when weather ceilings permit, maintain a constant flight direction and airspeed and a minimum flight elevation of 1,500 feet (458 meters) for helicopters and 1500 feet (458 meters) for fixed-winged aircraft. If at all possible, avoid flying over seabird colonies.
 - * Regulate human use to maintain a 250 meter no disturbance distance from seabird colonies on upland habitats.
2. The availability of garbage to gulls should be eliminated by requiring special use permittees to collect and dispose of garbage from their Special Use Authorizations.

3. Cooperate with state and other Federal agencies to develop sites and opportunities for the safe public viewing of these species. Maintain a public education program explaining forest management activities related to these species in cooperation with state and other Federal agencies.

IX. Waterfowl Habitats

- A. Maintain or enhance wetland habitats which receive significant use by waterfowl and shorebirds. Significant is relative but generally relates to use of a specific area by tens or hundreds of individuals of one or more species.
 1. Identify during project environmental analysis, in cooperation with the Alaska Department of Fish and Game and the U.S. Fish and Wildlife Service, wetlands which receive significant waterfowl use during fall/winter/spring concentrations or nesting, brood rearing or molting habitats.
 2. Locate facilities and concentrated human activities requiring Forest Service approval as far from known waterfowl concentration and nesting areas as feasible. Minimize disturbance of waterfowl by restricting, when feasible, development activities to periods when waterfowl are absent from the area.
 3. During project planning, consider the need to rehabilitate waterfowl habitat following development activities if there is no feasible alternative to the habitat disturbance. (Also see the Forest-wide Standards and Guidelines for Wetlands.)
 4. Maintain habitat capability in coastal wetlands and intertidal areas that are important migratory staging areas and fall/winter/spring concentration areas, and wetlands that are important nesting and brood-rearing habitats, by avoiding, where feasible, all development activities which could fill wetlands, drain wetlands, or alter water levels resulting in loss of desirable vegetation, or direct loss of habitat.
 5. Minimize human disturbance of habitats during important periods of the year (nesting and brood-rearing, molting, and winter) by managing human use (such as trails, off-highway vehicle use) in significant wetland areas. The following distances are provided as guidelines for reducing human disturbance:
 - * Provide a minimum distance of 330 feet (100 meters) between human activities on the ground and significant areas being used by other waterfowl.
 6. Develop waterfowl habitat improvement projects in cooperation with appropriate state and Federal agencies.
 7. For Special Use Administration (nonrecreational), issue only authorizations which meet the objectives of Executive Order 11990 (Protection of Wetlands). Issue permits which serve to preserve, enhance, or aid in the management of the natural and beneficial values of wetlands.
 8. Perform integrated logging system and transportation analysis to determine if other feasible routes avoiding high use waterfowl areas exist.
 9. If the need to restrict road access is identified during project interdisciplinary review, roads will be closed either seasonally or yearlong to minimize adverse effects on waterfowl.
 - 10 Cooperate with state and other Federal agencies to develop sites for safe public viewing opportunities. Maintain a public education program explaining forest management activities related to these species in cooperation with state and other Federal agencies.

X. Heron and Raptor Nest Protection

- A. Provide for the protection of raptor (hawk and owl) nesting habitat and great blue heron rookeries.
 1. Protect active rookeries and raptor nesting habitat. Active nests will be protected with 600 foot windfirm buffer of old growth forest habitat. Road construction through the buffer is discouraged. Prevent disturbance during the active nesting season

- (generally March 1 to July 31). Avoid direct aircraft flights on Forest Service permitted or approved activities.
2. Conduct annual monitoring for not less than 2 years after discovery of active nests. If the previously active nests remain inactive for 2 consecutive years, protection measures for the site may be removed.
 3. Bald eagle nest protection standards are outlined in Section V.
 4. Northern goshawk and osprey nest protection standards are included under the Threatened and Endangered Species Forest-wide Standard and Guidelines.

XI. Alexander Archipelago Wolf

- A. Implement a forest-wide program in cooperation with the Alaska Department of Fish and Game and the U.S. Fish and Wildlife Service to maintain a long-term sustainable wolf population.
 1. Cooperate with the Alaska Department of Fish and Game to monitor annual wolf mortality and population trends.
 2. Manage wolf mortality in cooperation with the Alaska Department of Fish and Game. Consider both access management and seasons and bag limits to achieve management objectives of a sustainable wolf population.
 3. Provide sufficient deer habitat capability to sustain a wolf/deer equilibrium and meet human deer harvest demands for sport and subsistence use. This is generally 13 deer per square mile (based upon the deer habitat capability model) in provinces where deer are the primary prey of wolves.
 4. Maintain a 600-foot windfirm buffer of forested habitat around active wolf dens. Road construction within the buffer is discouraged and alternate routes should be identified where feasible. Monitor the den for at least 2 consecutive years and if the den becomes inactive, then buffer restrictions can be removed.

XII. Mountain Goat

- A. Provide for the long-term productivity of native and introduced mountain goat habitat and viability of mountain goat populations.
 1. Locate facilities and concentrated human activities as far from important wintering and kidding habitat as feasible.
 - * Seek to locate facilities, camps, LTF's, campgrounds, and other developments 1 mile or more from important wintering and kidding habitat.
 - * If the 1 mile or more distance cannot be achieved, mitigate possible adverse impacts by seasonally restricting or regulating human use, and other-site specific mitigation measures.
 2. For Forest Service and State of Alaska permitted or approved aircraft flights (fixed wing and helicopter), including helicopter yarding of timber, should maintain a 1500 foot vertical or horizontal clearance from traditional summer and kidding areas and animals whenever feasible. Flight paths will seek to avoid known mountain goat kidding areas from May 15 through June 15. Pilots will not compromise safety.
 3. Seek to maintain mountain goat important winter habitat capability during project planning and implementation using the most recent version of the interagency mountain goat habitat capability model and field verified (generally productive old growth forest within 1,300 feet of escape terrain ($\geq 50\%$ slope or cliff)). Travel corridors used by mountain goats between important seasonal sites should be identified and maintained, especially when they occur in forested areas.

XIII. Marbled Murrelet

- A. Conduct project level inventories to assess murrelet presence and occupancy of terrestrial landscapes and evaluate the potential impact of a proposed project on murrelets. Use the most recent inventory protocol.

- B. Maintain a 600 foot, generally circular, radius of undisturbed forest habitat surrounding identified murrelet nests. Minimize disturbance activities within this buffer during the nesting season (May 1 - August 15). Maintain the buffer zone and monitor the site for nesting activity for not less than 2 nesting seasons after nest discovery. Maintain the buffer if the nest site is active during the monitoring period. Buffer protection may be removed if the site remains inactive for 2 or more nesting seasons.
- C. Cooperate and coordinate with state and other Federal agencies to better understand the life history requirements and distribution of the marbled murrelet.

XIV. Reserve Tree/Cavity-Nesting Habitat

- A. Provide habitat for cavity-nesting wildlife species.
 - 1. Retain reserve trees within all land use designations. Consider the following:
 - * Retain soft and hard reserve trees where possible, while meeting management objectives, considering safety needs for people and equipment.
 - * Where possible, save both hard and soft reserve trees in areas protected from wind.
 - * Reserve trees do not need to be evenly distributed; clumped distributions are preferred.
 - * Favor saving reserve trees away from roads to reduce loss from firewood gathering activity.
 - * After timber harvest in an area, remaining reserve trees may be designated as wildlife trees and marked to make them illegal for cutting.
 - * Consider retaining live trees for future reserve tree recruitment.

XV. Moose Habitat

- A. Develop habitat management direction for moose habitats.
 - 1. During project planning, inventory vegetative conditions in moose habitat areas to help identify short and long-term changes in habitat conditions, and to assess the effects of various management activities.
 - 2. Plan habitat improvement projects utilizing a variety of techniques such as silvicultural treatments, young-growth management activities, prescribed burning, planting, and other vegetative manipulation techniques as appropriate.
 - 3. Coordinate other resource management activities to maintain or improve habitat conditions for moose. Manage roads to minimize adverse effects of human access on moose populations. Open road densities shall not exceed 1 mile per square mile, calculated on a VCU basis. These open road densities apply to Maintenance Level 2, 3, 4, and 5 roads.
 - 4. Coordinate planning with other appropriate agencies.

Wildlife Habitat Improvement: WILD22

I. Improvement Projects

- A. Continue a young-growth management program to maintain, prolong, and/or improve understory forage production and to increase future old growth characteristics in young-growth timber stands for wildlife (deer, moose, black bear, and other species).
 - 1. Consider stands for young-growth management to the following areas and conditions:
 - * Historical deer winter range with high deer use.
 - * Historical or potential moose winter range.
 - * Areas with important and accessible consumptive and non-consumptive human uses of wildlife benefited by second-growth management.
 - * Second-growth timber stands which have a relatively high tree stocking density which would result in early loss of understory forage. Plant associations containing hemlock or spruce and *Vaccinium* or skunk cabbage with a higher on high site potential should be considered for treatment.

2. Use the following general guidelines for precommercial thinning:
 - * *Timing*: Time precommercial thinning before desirable forage species are shaded out by trees, although trees should fully occupy the site. The smaller trees in the stand should be at least one foot high so they can be seen and thinned or removed. Generally, highly productive sites will need to be thinned at a younger age (10-15 years) than moderate or low productive sites (15-25 years). Use site-specific conditions to determine the timing of precommercial thinning.
 - * *Spacing*: Vary tree spacings from 12 feet by 12 feet to 20 feet by 20 feet. Site-specific objectives and analysis should identify spacings to be used. Consider variable spacings and leaving some unthinned thickets to create future structural diversity.
 - * *Slash Disposal*: Generally, slash disposal treatments will not be necessary. In some site-specific areas, slash treatments may be needed to facilitate animal movements or increase forage production and availability. Consider slash treatments when slash depths exceed 1.6 ft. (50 cm.) as a general guideline. Slash treatments may include girdling trees, falling trees away from high forage areas, piling trees, or lopping and scattering of slash.
3. Use the following general guidelines for canopy gaps:
 - * *Timing*: Same as precommercial thinning. It is generally recommended that canopy gaps be created at the same time as precommercial thinning activity.
 - * *Slash Disposal*: Generally, slash disposal treatments will not be necessary. In some site-specific areas, slash treatments may be needed to facilitate animal movements or increase forage production and availability. Consider slash treatments when slash depths exceed 1.6 ft. (50 cm.) as a general guideline. Slash treatments may include girdling trees, falling trees away from high forage areas, piling trees, or lopping and scattering of slash.
 - * *Sizes*: Size recommendations for canopy gaps range from 0.1 acres to 2.0 acres. Site-specific objectives and analysis should identify the gap sizes.
 - * *Amount of Area*: Depending upon site-specific objectives, recommendations for the amount of area to be managed for canopy gaps range from 5 to 50 percent of the harvest unit.
 - * *Maintenance*: Where possible, maintain canopy gaps to prevent loss of understory forage whenever possible from tree canopy closure or tree regeneration. Generally, 10 to 25 year intervals will occur between treatments.
4. Use the following general guidelines for commercial thinning:
 - * *Spacing*: Do not use fixed-spaced thinnings. Vary tree spacing and maintain canopy gaps and openings to allow for some "side lighting" to occur.
 - * *Timing*: Commercial thinning should occur prior to loss of understory forage. Timing will vary depending on site-specific conditions.
 - * *Method*: Use a "free thinning method" to encourage vertical diversity and windfirmness. Do not remove more than 25 to 30 percent of the stand basal area (rule of thumb to prevent blowdown).
 - * *Snow Interception*: Leave 10 to 20 of the largest trees on each acre for snow interception.
- B. Coordinate habitat improvement projects with the Alaska Department of Fish and Game, the U.S. Fish and Wildlife Service and other appropriate agencies.

Wildlife Habitat Maintenance: WILD23

I. Maintenance

- A. Provide for the maintenance of wildlife habitat improvements.

1. Fund maintenance of existing structures prior to the construction of new structures.
 2. Include funding for maintenance in planning and budgeting all structures.
 3. Maintain structures to assure objectives of the original project are met.
 4. If the improvement becomes inefficient to operate or maintain, redesign or stop maintenance of that improvement.
 5. If a structure becomes inoperable, consider removal or reconstruction, as appropriate.
- B. Develop a written agreement with project cooperators on maintenance responsibilities prior to project construction.

Chapter 5

Implementation

CHAPTER 5 - IMPLEMENTATION

INTRODUCTION

Implementation of the Forest Plan involves the scheduling and execution of specific projects and activities to carry out or meet the goals, objectives and desired future condition of the Plan. Estimated schedules of projects for several resources are included in Appendix I; these schedules are dynamic and are likely to be frequently updated. Implementation includes the planning and analysis required for each project that will achieve the objectives and comply with all applicable standards and guidelines. Proposals by others (such as to construct a communications facility) are evaluated using the same standards and guidelines, and must comply with all applicable direction in the Forest Plan.

Each year, upon approval of a final budget, the Forest makes final and implements an annual program of work. Future budget requests will be based on the resource schedules and goals and objectives of the revised Forest Plan. The accomplishment of the annual program of work results in the step-by-step implementation of Forest Plan management direction.

TTRA REQUIREMENTS

The Tongass Timber Reform Act (TTRA) included several requirements for management of the Tongass which have been incorporated into this revised Forest Plan. The application of stream buffers, the creation of new Wilderness areas, and the creation of permanent Land Use Designation II areas were included in the February 1991 Amendment to the Tongass Forest Plan, and these have been incorporated into this Revised Plan. The modification of the long-term timber sale contracts regarding "proportional" timber harvest of high-volume old growth has also been reflected in this Revision. These four provisions of TTRA are explained briefly here. Further information is contained in the relevant sections of the EIS.

1. TTRA mandates a no-commercial-timber-harvest zone, or buffer, of at least 100 feet on either side of all Class I streams, and of all Class II streams which flow directly into Class I streams. The Riparian Forest-wide Standards and Guidelines include this requirement.
2. Five new Wildernesses were created, and a sixth expanded, for a total of 299,696 acres. These areas have all been assigned the Wilderness Land Use Designation. The areas are: Chuck River, Karta River, Kuiu, Pleasant-Lemesurier-Inian Islands, South Etolin Island, and the Young Lake Addition to Kootznoowoo Wilderness.
3. Twelve other areas, totaling 727,765 acres, were given a permanent "Land Use Designation II" status, to be managed in an essentially roadless condition with no commercial timber harvest allowed. The LUD II Land Use Designation

was developed to carry forward the LUD II direction from the 1979 Forest Plan, as amended, and was assigned to these areas. The areas are: Yakutat, Berners Bay, Anan, Kadashan, Lisianski/Upper Hoonah, Mt. Calder/Holbrook, Nutkwa, Outside Islands, Trap Bay, Point Adolphus/Mud Bay, Naha and Salmon Bay.

4. TTRA Section 301(c)(2) provides that:

The [long term timber sale] contracts are hereby modified to:

... (2) eliminate the practice of harvesting a disproportionate amount of old-growth timber by limiting the volume harvested over the rotation in volume classes 6 and 7, as defined in TLMP and supporting documents, so that the proportion of volume harvested in these classes within a contiguous management area does not exceed the proportion of volume currently represented by these classes within the management area.

TTRA proportionality is an implementation requirement limited to the Ketchikan Pulp Company (KPC) long term timber sale contract (the only one remaining). To assure that implementation can take place, the timber yield calculations for each Revised Supplement forest plan alternative were based on scheduling the high, medium and low volume classes used in the Revised Supplement evenly over the planning horizon. This provides enough flexibility in the amount of high and low volume scheduled to implement the TTRA proportional harvest requirement in any management area where KPC long term contract harvest may occur.

THE TWO-STEP PLANNING PROCESS

The Forest Plan provides the broad, programmatic direction necessary to manage the resources and uses of the National Forest in a coordinated and integrated manner. This direction includes the multiple-use goals and objectives, management prescriptions, and standards and guidelines. The standards and guidelines are then applied to individual projects to assure that the goals and objectives, and the intent of the prescriptions, are carried out. Forest Plans normally do not make site-specific decisions; that is the role of project-level environmental analysis.

The **first step** in the land management planning process is the Forest Plan, which determines land allocations, and provides requirements for site-specific decisions. The **second step** is the analysis of individual projects, which includes applying the standards and guidelines from the Forest Plan to site-specific activities.

Project-level decisions generally require site-specific environmental analysis. Common project-level decisions include whether or not, and if so, in what way, timber will be harvested in a particular area, a campground will be constructed, or a fisheries structure will be installed. An environmental analysis document,

such as an environmental impact statement or environmental assessment, precedes these decisions unless they are categorically excluded from documentation. Project-level planning provides an additional opportunity (beyond development of the Forest Plan) for public participation.

ADAPTIVE MANAGEMENT

Adaptive management is a fairly new term for a very old concept: learning from experience. It is the ecosystem management counterpart to hypothesis testing in experimental science, or feedback control in systems theory. All such concepts have two essential elements in common: 1) a *feedback* element which gathers and evaluates information about *current* performance (of an action or activity), and 2) an *adjustment* element which responds to feedback information by being able to alter *future* performance when needed. (See Bormann et al., Adaptive Ecosystem Management in the Pacific Northwest, 1994, for a fuller discussion of these ideas.)

For forest planning, two key aspects of adaptive management are the monitoring and evaluation process (see Chapter 6), which provides feedback on planned activities and the effectiveness of resource protection or mitigation measures, and the amendment process (described below), which allows for making necessary changes to those activities and measures. Monitoring is one source of feedback information; other sources include scientific literature and studies, resource inventories, changes in technology, and public concerns. Adaptive management is both the recognition of these sources as potential signals for change, and the willingness, through environmental analysis and the plan amendment process, to positively respond to these signals. It is also the recognition that forest planning, and ecosystem management, will never have complete or "perfect" information, but that planning can minimize uncertainty by including the ability to adapt to change.

This Forest Plan embraces these adaptive management concepts.

AMENDMENTS

When a change to the Forest Plan is needed, the Forest Supervisors will prepare an amendment and conduct an environmental analysis. Non-significant (minor) amendments may be approved by the Forest Supervisors. Significant (major) amendments must be approved by the Regional Forester. The development and approval of a significant amendment must follow the same procedures as were required for developing and approving the Forest Plan (or its revision). ("Significance" here is as defined by the National Forest Management Act regulations, and is different than significance as used under the National Environmental Policy Act.)

The Forest Supervisors (the Tongass National Forest is divided into three Administrative Areas, each with a separate Forest Supervisor) may amend, or recommend to amend, the Forest Plan at any time. An amendment may result from:

1. Recommendations of an interdisciplinary team, based on results of monitoring and evaluation.
2. Decisions by the Forest Supervisors that existing or proposed permits, contracts, cooperative agreements, or other instruments authorizing occupancy and use are appropriate, but are not consistent with the Forest Plan.
3. Changes in projects to be implemented, resulting from differences between Forest Plan projected funding levels, and funds actually appropriated.
4. Administrative appeal decisions.
5. Planning errors found during Forest Plan implementation.
6. Changes in physical, biological, social or economic conditions.

The Forest Supervisors will determine whether proposed changes in the Forest Plan are significant or non-significant. If determined to be non-significant, the Forest Supervisors will document that determination in a decision document, after environmental analysis if appropriate, and provide public notification prior to implementing the changes. If the change is determined to be significant, the decision about the change then rests with the Regional Forester, who will also prepare a decision document after environmental analysis. Non-significant amendments applicable to only one Administrative Area require a decision from only that Area's Forest Supervisor.

Non-significant amendments to the Forest Plan may result from:

1. Actions that do not substantially alter the multiple-use goals and objectives for long-term land and resource management.
2. Minor adjustments to land use designation boundaries, management prescriptions, or Forest-wide standards and guidelines resulting from further site-specific analysis.
3. Short-term fluctuations in projects to be implemented or in planned annual outputs.

Significant amendments to the Forest Plan may result from:

1. Changes that have a major effect on the entire Forest Plan, or that affect land and resources throughout a large portion of the planning area (for example, major area-wide increases or decreases in resource demands).

2. Changes that would significantly alter the long-term relationship between the amounts of resource uses and Forest products originally projected (such as changes in implementation schedules resulting from sustained differences between proposed and actual budgets).
3. Major changes in management prescriptions or land use designation allocations, or in Forest-wide standards and guidelines.

REVISIONS

The Forest Plan will ordinarily be revised on a 10-year cycle, or at least every 15 years. It also may be revised whenever the Forest Supervisors determine that conditions in the area covered by the Forest Plan have changed significantly, or when changes in national policies, goals, or objectives would have a significant effect on Forest-level programs. In the monitoring and evaluation process, an interdisciplinary team may recommend a revision (or an amendment) of the Forest Plan at any time.

Revisions are not effective until considered and approved in accordance with the requirements for the development and approval of the Forest Plan. The Forest Supervisors will review conditions in the area covered by the Forest Plan at least every five years to determine whether significant changes have occurred. Revisions must be approved by the Regional Forester.



Chapter 6

Monitoring and Evaluation

Chlorine
Hydrogen
Oxygen

CHAPTER 6 - MONITORING AND EVALUATION PLAN

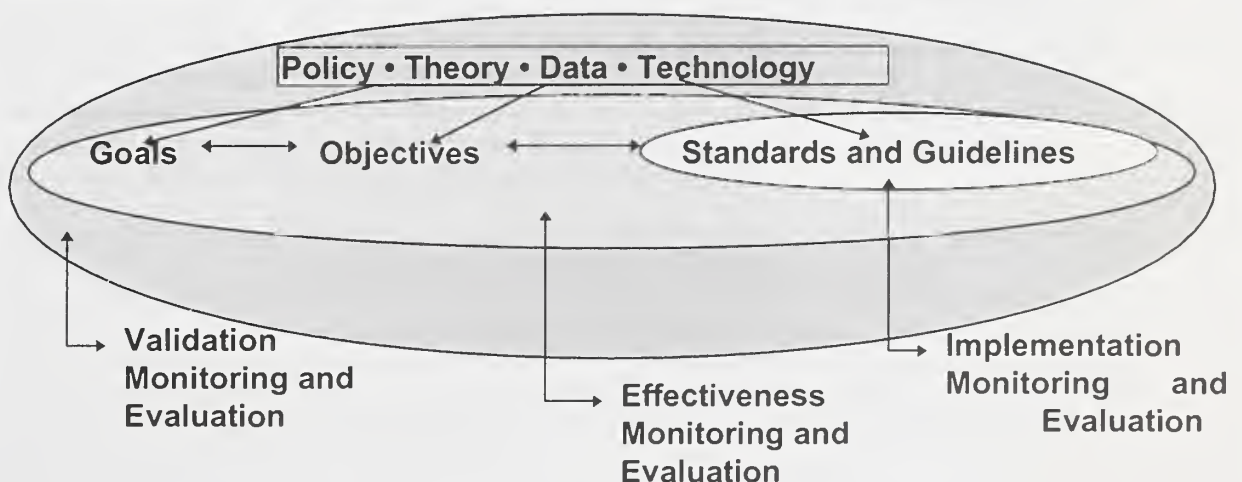
I. INTRODUCTION

Monitoring and evaluation is a quality control process for implementation of the Tongass Land Management Plan (TLMP). It provides the public, the Forest Service, and other concerned resource agencies with information on the progress and results of TLMP. As such, monitoring and evaluation comprise an essential feedback mechanism within an adaptive management framework to keep TLMP dynamic and responsive to changing conditions. The evaluation process also provides the feedback that triggers corrective action and the adjustment of plans and budgets, or both, so that they are realistic and being adhered to.

TLMP identifies management directions for the Forest in terms of goals, objectives, and standards and guidelines--all of which are based on underlying assumptions (policy, theory, data, and technology). The figure below illustrates the scopes and types of monitoring and evaluation and the relationships between goals, objectives, and standards and guidelines as defined below.

Monitoring is gathering data and information and observing the results of management activities to provide a basis for the periodic evaluation of TLMP. Evaluation is a process for interpreting monitoring data and determining whether changes in management direction are needed. This plan recognizes three types of monitoring and evaluation: implementation, effectiveness, and validation. Implementation monitoring and evaluation is used to determine whether standards and guidelines are implemented. Effectiveness monitoring and evaluation is used to determine whether standards and guidelines are achieving objectives, and whether objectives are achieving goals. Validation monitoring and evaluation is used to examine whether the assumptions and predicted effects used to formulate the plan are accurate.

A goal is a concise statement that describes a desired condition to be achieved some time in the future (36 § 219.3). It is normally expressed in broad, general terms and is timeless in that it has no specific date by which it is to be completed. Goal statements form the principal basis from which objectives are developed. An objective is a concise, time-specific statement of measurable planned results that respond to pre-established goals (36 CFR § 219.3). An objective forms the basis for further planning to define the precise steps to be taken and the resources to be used in achieving identified goals. A standard is a limitation on management activities that is within the authority and ability of the agency to meet or enforce. A guideline is a description of a preferred or advisable course of action.



II. ROLES AND RESPONSIBILITIES

The Forest Service will continue and strengthen the collaborative working relationships between the Regional Office, each Administrative Area, and the Pacific Northwest Station. For the purposes of this monitoring and evaluation plan, the roles and responsibilities of forest management and forest research are defined below

Regional Office. The role of the Regional Office is to develop regional policies and directives on monitoring and evaluation.

Administrative Areas. The role of each Administrative Area (Chatham Area, Ketchikan Area, Stikine Area) is to execute the Forest Plan and conduct implementation monitoring and evaluation. The responsibilities of the Administrative Areas include:

1. Preparing an annual monitoring program
2. Collecting data for implementation monitoring
3. Assisting the Pacific Northwest Station in collecting data for effectiveness and validation monitoring
4. Analyzing and interpreting implementation monitoring data and reporting implementation monitoring results, conclusions and recommendations to the Regional Office, and making these reports available to the public and other agencies.

Pacific Northwest Research Station. The role of the Station is to provide scientific and technical expertise to conduct effectiveness and validation monitoring and evaluation. The responsibilities of the Station include advising and assisting the Region with:

1. Publishing, when appropriate, study results in Pacific Northwest Research Station publications or professional journals.
2. Development of effectiveness and validation monitoring study plans, including study objectives, sampling designs, protocols, quality assurance plans, and budgets
3. Collection of data for effectiveness and validation monitoring (with the assistance of the Administrative Areas)
4. Analysis and interpretation of the data
5. Reporting study results, conclusions and recommendations to the Administrative Areas and the Regional Office, and making these reports available to the public and other agencies

III. FUNDING APPROACH

Although actual annual funding may not correspond to the level projected in TLMP, each Administrative Area will, subject to appropriations and higher level funding direction, ensure that monitoring and evaluation is funded at a level commensurate with the level of funding provided for program implementation. For example, if the wildlife program is funded at the 90 percent level for a given year, then the TLMP monitoring program for wildlife that is not covered by project funds should also be funded at about the 90 percent level to ensure that one-year funding reductions do not impair the ability of long-term monitoring studies to produce useful and meaningful results.

IV. RELATIONSHIP TO OTHER MONITORING ACTIVITIES

This monitoring and evaluation plan is not intended to depict all monitoring activities undertaken on the Forest. Many such activities are conducted under direction contained in site-specific project plans developed under the programmatic guidance of TLMP. Other routine monitoring activities include the use of Timber Sale Administrator and Engineer Reports and Unit Monitoring Cards. Finally, management of the forest, including implementation of project plans and TLMP, is reviewed and documented periodically by various Forest Service officials during what are known as 'Management Reviews,' 'Activity and Program Reviews,' and 'General Management Reviews,' depending on the geographic or programmatic scope of the review, or both.

The requirements of this monitoring and evaluation plan are not intended to replace monitoring requirements developed in the project planning process, or other ongoing monitoring activities such as the use of unit cards or management reviews. Specific project monitoring requirements will continue to be determined in the National Environmental Policy Act / project planning process, based on interagency and public involvement early in the planning process. Although there will be overlap between monitoring requirements of project plans and TLMP, no single project monitoring plan is expected to address all of the questions listed in this monitoring and evaluation plan. Some project plans may impose monitoring requirements not included in this monitoring and evaluation plan, in response to site-specific concerns. Taken as a whole, however, each Administrative Area's project monitoring plans should be designed to answer the questions posed in this monitoring and evaluation plan, so that wherever possible monitoring requirements in TLMP can be met by compiling the results of project monitoring.

Finally, other data gathering activities are listed in Appendix B as 'information needs.' These are inventory or research items that are useful or necessary, and can be thought of as 'monitoring' in a broad use of the term. Many of these items are often called 'baseline' or 'trend' monitoring. Because these items are not essential to determining the effects of TLMP implementation, however, these items are not included in the monitoring and evaluation plan as required tasks.

V. ANNUAL MONITORING AND EVALUATION PROGRAMS

Each Administrative Area will prepare an annual monitoring program as part of its annual work program. This program should display how the Area will meet all its monitoring requirements, including how the different monitoring tasks (project plan and TLMP, as well as different resource areas, for example) will be coordinated to avoid duplication and reduce costs. The costs of project monitoring will be included as a required cost of the project. To the extent that project monitoring generates information needed to satisfy TLMP monitoring requirements, most of the TLMP monitoring costs will be assigned to the relevant projects. Remaining TLMP monitoring costs must be obtained from program funds.

VI. MONITORING AND EVALUATION REPORT CONTENTS

Area Forest Supervisors are responsible for coordinating the preparation of an annual monitoring and evaluation report. Annual monitoring reports shall include, but not be limited to, the following information:

1. Introduction. Descriptions of the purpose and scope of the report.
2. Results. A summary of the results of monitoring and evaluation efforts for each forest management goal.
3. Changes Identified. Identification of any changes needed in how TLMP is being implemented.
4. Proposed Plan Amendments. Identification of whether amendment or revision of the Forest Plan is needed.
5. Proposed Updates. A brief description of any amendments that have been initiated or become effective since the previous report.
6. Monitoring and Evaluation Strategy Updates. A brief description of any updates made to the monitoring and evaluation strategy.
7. Nondiscretionary Changes. A brief description of any nondiscretionary changes made to TLMP pursuant to 36 CFR § 219.9(b).
8. Ecosystem Management. A description of projects that highlight how the Alaska Region's ecosystem management strategy is being implemented.
9. Project Specific Monitoring. A brief description of project specific monitoring activities on other key issues (Karst, slope stability, for example).
10. Cost. The actual cost of conducting monitoring activities and for preparing annual monitoring reports.

VII. ORGANIZATION OF MONITORING AND EVALUATION ITEMS

The following is a description of how the monitoring and evaluation items in this plan are organized.

A. RESOURCE AREA

Forest Plan Goal: These goals provide the basis for forest management objectives and projected outputs of goods and services. Goals are presented alphabetically.

1. **Monitoring Question**

- a) Type: Implementation, Effectiveness, Validation
- b) Land Use Designation Affected: Forest areas where the monitoring question applies.
- c) Action/Effect to be Measured: A brief statement of what will be examined.
- d) Sampling Methods: The methods for collecting information needed to answer the monitoring question, including the minimum sampling level.
- e) Expected Precision and Reliability: The implementing regulations for the National Forest Management Act require the monitoring and evaluation plan to include a description of the “expected precision and reliability of the monitoring process” (36 CFR § 219.12 [k][4]). “Precision” and “reliability” are not defined in the regulations. Previous drafts of the monitoring and evaluation plan have defined “precision” to mean accuracy and “reliability” to mean reproducibility. However, several reviewers have noted that precision is not the same as accuracy and that precision, reliability, and reproducibility are synonymous. For the purposes of this draft, we have not changed the previous definitions, but we recognize that we may need to do so in the final plan. “Precision” is interpreted to be an indication of how accurate the monitoring results are expected to be, and “reliability” is interpreted to be an indication of how reproducible the monitoring results are expected to be.
- f) Reporting Period: The schedule on which the collected data are aggregated, evaluated and reported to determine if further action is necessary. If conditions warrant, reports may be prepared more often than indicated.
- g) Lead Responsibility: Responsibility for conducting and evaluating the monitoring activity.
- h) References: Statutory or regulatory foundations of the monitoring question, where applicable.

VIII. MONITORING AND EVALUATION ITEMS

A. AIR

Maintain the current air resource condition to protect the Forest's ecosystems from on- and off-Forest air emission sources.

1. Is air quality changing on the Tongass National Forest?

- a) Type: Validation
- b) Land Use Designation Affected: All
- c) Action/Effect to be Measured: Measure trend to assure no significant change in flora size or composition.
- d) Sampling Methods: Measure lichen colony growth every 5 years (1996, 2001) on the 80 established plots, as documented in Geiser (1994) publication R10-TB-46. Measurements should be done by a single crew for consistency.
- e) Expected Precision and Reliability. Precision: Medium. Information easily quantified. Reliability: Medium. Some interpretation required.
- f) Reporting Period: Five-year interval (1996, 2001).
- g) Lead Responsibility: Stikine Area Planner
- h) References: Clean Air Act.

B. FISH HABITAT

Fish habitat goals are to maintain and restore the natural range and frequency of aquatic habitat conditions across the Tongass National Forest to sustain the diversity and production of fish and other freshwater organisms.

1. Are fish and riparian standards and guidelines being implemented as described in TLMP?

- a) Type: Implementation
- b) Land Use Designations Affected: Mostly those allowing timber harvest and roading.
- c) Action or Effect to be Measured: Compliance of land disturbing projects with fish & riparian standards and guidelines

- d) Sampling Methods: Annually conduct field inspections on a sample of 10 to 20 percent of the harvest units and their associated roads accepted in the previous year to determine if standards and guidelines have been implemented. Monitoring included with this item overlaps with Timber and Watershed monitoring items.
- e) Expected Precision and Reliability. Precision: Medium. Although some of the standards and guidelines are quantitative and easy to measures, others are more qualitative and difficult to quantify. Reliability: Medium. Measuring adherence to some of the standards and guidelines is somewhat subjective, and may vary from observer to observer.
- f) Reporting Period: Annual
- g) Lead Responsibility: Area Fish and Watershed Staff Officers
- h) References: 36 CFR § 219.12 (k); Tongass Timber Reform Act (TTRA)

2. Are fish & riparian standards and guidelines effective in maintaining or improving fish habitat?

- a) Type : Effectiveness
- b) Land Use Designations Affected: All
- c) Action or Effect to be Measured: Effects of management activities in riparian areas on fish habitat capability.
- d) Sampling Methods: Annually conduct field inspections on a sample of 10 to 20 percent of the harvest units and their associated roads accepted during the previous year to determine if standards and guidelines have been implemented. Estimate habitat components important for fish, including the fish habitat management objectives such as:
 - (1) large woody debris
 - (2) pool depth, frequency and percent of area
 - (3) stream width to depth ratios
 - (4) accumulation of fine sediments
 - (5) upstream fish passage at road crossings (for class I streams generally use juvenile coho salmon as the minimum passage design species and life stage).

- e) Expected Precision and Reliability. Precision: Medium. Some of the components of habitat capability are straightforward to measure, while others are difficult to evaluate to close tolerances. For example, the long-term effectiveness of the windfirmness of unharvested acres may be difficult to evaluate. Reliability: Medium. Since some subjective judgment is necessary, interpretations by specialists may vary.
- f) Reporting Period: Annually or as data become available.
- g) Lead Responsibility: Area Fisheries Staff Officer
- h) Reference: 36 CFR § 219.12 (a)(6)

C. MINERALS

Minerals goals are to (1) support environmentally sound mineral exploration, development and reclamation in all areas open to mineral entry, and for areas with valid existing rights otherwise closed to mineral entry, (2) encourage the development of mineral resources in areas with high development potential, and (3) request withdrawal from mineral entry of areas where mineral development would not be compatible with the intended use, or would not be allowed by law or regulation.

1. Are mineral development activities consistent with the mineral goals defined above?

- a) Type : Effectiveness
- b) Land Use Designations Affected: All
- c) Action or Effect to be Measured: Effects of mineral development on other forest resources.
- d) Sampling Methods: Annually summarize individual monitoring reports for all mineral resource projects.
- e) Expected Precision and Reliability. Precision: Medium. Reliability: Medium. Since some subjective judgment is necessary, interpretations by specialists may vary.
- f) Reporting Period: Annually.
- g) Lead Responsibility: Area Planning Officer
- h) Reference: 36 CFR § 219.12 (a)(6)

D. RECREATION AND TOURISM

Recreation and tourism goals are to (1) provide a range of recreation opportunities consistent with public demand from rural and roaded modified, to primitive and semi-primitive types, and (2) emphasize recreation places identified as being popular with local users or important to the tourism industry.

1. Are Recreation Opportunity Spectrum (ROS) settings being maintained as prescribed in the Forest Plan?

- a) Type: Implementation.
- b) Land Use Designations Affected: All.
- c) Actions or Effects to be Measured: Acres of land in ROS settings as allowed by land allocations.
- d) Sampling Methods: Annually update the ROS data base for areas affected by management activities or visitor use. Compare the results to the most developed ROS category prescribed for the given Land Use Designation.
- e) Expected Precision and Reliability. Medium. Human-caused changes in site-specific ROS settings can be measured fairly precisely, but some precision is lost in aggregating these measurements over the entire Forest.
- f) Reporting Period: Annual, with a detailed 5-year report which assesses the cumulative changes in ROS.
- g) Lead Responsibility: Area Recreation Staff Officer
- h) Reference: 36 CFR § 219.12 (k)(2)

2. What are the types and quantities of recreation facilities constructed or reconstructed?

- a) Type: Implementation.
- b) Land Use Designations Affected: All areas where recreation facilities are permitted.
- c) Actions or Effects to be Measured: Construction and reconstruction activities.
- d) Sampling Methods: Collect and report this information from the Recreation Information Management System. If anticipated outputs are not achieved, determine the cause.

- e) Expected Precision and Reliability. Precision: High. Information easily quantified. Reliability: High. No interpretation required.
- f) Reporting Period: Annual
- g) Lead Responsibility: Area Administrative and Planning Staff Officers
- h) Reference: 36 CFR § 219.12 (k)

3. How many miles of trails have been constructed and reconstructed?

- a) Type: Implementation.
- b) Land Use Designations Affected: Areas where trails are permitted.
- c) Actions or Effects to be Measured: Length of trail construction and reconstruction.
- d) Sampling Methods: Collect and report this information from the Recreation Information Management System. If anticipated outputs are not achieved, determine the cause.
- e) Expected Precision and Reliability. Precision: High. Mileage is easily quantifiable. Reliability: High. No interpretation required.
- f) Reporting Period: Annual
- g) Lead Responsibility: Area Administrative and Planning Staff Officers
- h) Reference: 36 CFR § 219.12 (k)

E. RURAL DEVELOPMENT

Rural development goals are to (1) emphasize a diversity of opportunities for resource uses that contribute to the local and regional economies of Southeast Alaska, and (2) work with local communities to identify rural development opportunities and provide leadership and technical assistance in their implementation.

1. Are land management activities contributing to diverse economic opportunities that are consistent with the needs and desires of local communities?

- a) Type: Effectiveness

- b) Land Use Designations Affected: All that allow some development activity.
- c) Action or Effect to be Measured: Effects of management activities on the economic opportunities and desires of local southeast communities.
- d) Sampling Method: Annually, analyze changes in economic and social patterns in at least 20 percent of rural Southeast Alaska communities so that each recognized rural community is analyzed at least once every five years to determine economic and social base of the community, and changes due to Forest Service actions. Methods to be used should follow standard social-science practices, sampling at a rate consistent with sound statistical procedure, which will depend on the size of the community. Results will be both quantitative and qualitative.
- e) Expected Precision and Reliability. Precision: Medium. Responses will depend in part on the skill, training, and attitude of the interviewer, how questions are framed, and level of trust. Reliability: Low to High. This depends on the interviewer and basis of trust with the Forest Service at that time.
- f) Reporting Period: Annual, with detailed five-year compilations.
- g) Lead Responsibility: Area and Regional Planning Staff Officers.
- h) Reference: 36 CFR § 219.12 (k)

F. SCENERY

The scenery goal is to provide Forest visitors with visually appealing scenery, with emphasis on many areas seen from the Alaska Marine Highway, State highways and major Forest Roads, and popular recreation places. In other areas, where landscapes are being altered by management activities, the activity may dominate the characteristic landscape.

1. Do completed management activities meet the visual quality objectives as adopted in TLMP?

- a) Type : Effectiveness
- b) Land Use Designations Affected: All
- c) Action or Effect to be Measured: Change in visual conditions resulting from project implementation.
- d) Sampling Methods: Annually conduct field inspections on a sample of 10 to 20 percent of the harvest units and their associated roads accepted during the previous year to determine

if standards and guidelines have been implemented. Visual monitoring shall be conducted from the Visual Priority Travel Routes and Use Areas identified in Appendix F of TLMP. For the purposes of this monitoring, the effects of timber management activities should be analyzed on a viewshed basis. Other land-altering activities, such as construction of fish pass structures, recreation facilities, and log transfer facilities should be analyzed on a project basis.

- e) Expected Precision and Reliability. Precision: Medium. Site-specific measurements of attainment of visual quality objectives can be made accurately, but some precision will be lost during aggregation. Reliability: Medium. The purpose of each visual quality objective is fairly clear, however different evaluator's personal subjectivity may often result in a different result. In order to minimize the differences in subjective evaluations by individuals, evaluation is performed by trained landscape architects which should result in medium reliability of results.
- f) Reporting Period: Annual
- g) Lead Responsibility: Area Visual Resource Staff Officer
- h) Reference: 36 CFR § 219.12 (k)

2. Are the standards and guidelines prescribed in the Forest Plan Revision effective in attaining the adopted Visual Quality Objectives established in the plan?

- a) Type : Effectiveness
- b) Land Use Designations Affected: Scenic Viewshed, Modified Landscape, Timber Production, Scenic River, and Recreation River.
- c) Action or Effect to be Measured: Whether the standards and guidelines associated with harvest unit size, type of silvicultural system used, amount of dispersal between units, and overall percent of viewshed disturbed are generally adequate to meet the different visual objectives in different types of landscapes.
- d) Sampling Methods: Select a representative set of viewsheds across the Forest (15 per Administrative Area) that have been harvested during implementation of Forest Plan standards and guidelines. These viewsheds should be associated with the use areas or travel routes on the Visual Priority List found in Appendix F. This set should include areas representing all four visual quality objectives and landscapes representing the different characteristic landscapes and different Visual Absorption Capability (VAC) settings. This monitoring should also include assessing the effectiveness of alternatives to

clearcutting management prescriptions that have been developed and implemented before or since the adoption of the Forest Plan.

- e) Expected Precision and Reliability. Precision: Medium. Site-specific measurements of attainment of visual quality objectives can be made accurately, but some precision will be lost during aggregation. Reliability: Medium. The purpose of each visual quality objective is fairly clear, however different evaluator's personal subjectivity may often result in a different result. In order to minimize the differences in subjective evaluations by individuals, evaluation is performed by trained landscape architects which should result in medium reliability of results.
- f) Reporting Period: 3 to 5 years following adoption of the Forest Plan.
- g) Lead Responsibility: Regional Visual Resource Management Program Leader
- h) Reference: 36 CFR § 219.12 (k)

G. SOILS

The soils goals are to (1) maintain soil productivity forest-wide, and (2) minimize soil erosion resulting from land-disturbing activities.

1. **Are the standards and guidelines effective in preventing significant or permanent impairment of soil productivity?**
 - a) Type : Effectiveness
 - b) Land Use Designations Affected: All that allow significant land-disturbing activity.
 - c) Action or Effect to be Measured: Effects of project management activities on soil productivity.
 - d) Sampling Methods: Annually conduct field inspections on a sample of 10 to 20 percent of the harvest units and their associated roads accepted during the previous year to determine if soil quality standards were successful in avoiding any significant or permanent impairment of soil productivity.
 - e) Expected Precision and Reliability. Precision: Medium. Some measures of soil productivity are not easily quantifiable, while others are. Reliability: Medium. Some subjectivity is required to judge the effectiveness of soil quality standards.
 - f) Reporting Period: Annual

- g) Lead Responsibility: Area Watershed Staff Officer
- h) References: 36 CFR § 219.12; R10 Supplement to Forest Service Manual (FSM) 2554 #2500-92-1, effective 1/15/92, as amended.

H. SUBSISTENCE

The subsistence goal is to provide for the continuation of subsistence uses by rural Alaskan residents.

1. **Are land management activities (including road, timber and recreation programs) having the expected effects on subsistence users?**
 - a) Type : Effectiveness
 - b) Land Use Designations Affected: All
 - c) Action or Effect to be Measured: Effects of management activities on subsistence users in rural Southeast Alaska communities.
 - d) Sampling Methods: Annually, analyze changes in resource use patterns in at least 20 percent of rural Southeast Alaska communities so that each recognized rural community is analyzed at least once every five years to determine access, competition, geographic areas of use, and changing resource use. Methods to be used should include face-to-face interviews following standard social-science practices, sampling at a rate consistent with sound statistical procedure, which will depend on the size of the community. Cooperation with the Alaska Department of Fish and Game Subsistence Division is desirable and may be possible. Results will be both quantitative and qualitative.
 - e) Expected Precision and Reliability. Precision: Medium. Responses will depend in part on the skill, training, and attitude of the interviewer, how questions are framed, and level of trust. Reliability: Low to High. This will depend on the interviewer and basis of trust with the Agency at that time.
 - f) Reporting Period: Annual with detailed 5-year compilations
 - g) Lead Responsibility: Area and Regional Subsistence Staff Officers
 - h) Reference: The Alaska National Interest Lands Conservation Act (ANILCA) Title VIII

I. TIMBER MANAGEMENT

Timber management goals are to (1) manage the timber resource for the production of sawtimber and other wood products from suitable timber lands made available for timber harvest, (2) manage for an even flow of timber on a long term sustained yield basis in an economically efficient manner, (3) seek to provide a timber supply sufficient to meet the annual market demand for timber, and the market demand for the planning cycle.

1. Are timber harvest activities adhering to applicable timber management standards and guidelines as prescribed in TLMP?

- a) Type : Implementation
- b) Land Use Designations Affected: All that allow timber management
- c) Action or Effect to be Measured: Harvest units in compliance with TLMP standards and guidelines
- d) Sampling Methods: Annually conduct field inspections on a sample of 10 to 20 percent of the harvest units and their associated roads accepted during the previous year to determine if the following sets of standards and guidelines were implemented as prescribed: maximum clearcut size limits, including compliance with criteria for exceptions to the 100-acre size limit; and timber dispersion, including compliance with (1) the standard and guideline for timber harvest activities specific to visual quality objectives and visual absorption capability settings; (2) maximum allowable disturbance for timber harvest; and (3) guidelines for allowing harvest on slopes in excess of 72 percent. Compliance with the long-term contract proportional harvest requirements, TTRA §301(c)(2), the stream buffer requirements of Tongass Timber Reform Act (TTRA) Section 103, and the management of the beach fringe and estuarine areas within timber harvest prescriptions as required by the Beach Fringe and Estuary Forest-wide Standards and Guidelines
- e) Expected Precision and Reliability. Precision: Medium. These standards and guidelines are reasonably clear and quantifiable. Reliability: Medium. Since these standards and guidelines are clear and easily quantifiable, leaving little room for subjective interpretation, so little variation between observers is expected.
- f) Reporting Period: Annual
- g) Lead Responsibility: Area Timber Staff Officer
- h) References: 36 CFR § 219.12 (k); TTRA § 103 and § 301(c)(2)

2. **Are the effects of timber management activities on other resources consistent with expectations in TLMP?**

- a) Type: Effectiveness
- b) Land Use Designations Affected: All that allow timber management
- c) Action or Effect to be Measured: Comparison of effects of timber projects with effects anticipated in project plans, and aggregation of these comparisons to the TLMP level.
- d) Sampling Methods: Annually conduct field inspections on a sample of 10 to 20 percent of the harvest units and their associated roads accepted during the previous year to determine--at least on a qualitative level--if the effects of the timber management activities on other resources meet TLMP objectives. Whenever such qualitative reviews identify potential adverse effects of timber management activities on other resources that cannot be judged by visual observation, follow-up quantitative effects analysis will be conducted by the appropriate resource staff under other specific monitoring tasks listed elsewhere in this monitoring and evaluation plan.
- e) Expected Precision and Reliability. Precision: Medium. Since some of the standards and guidelines do not have easily measurable objectives, measuring the accomplishment of them will require some subjective judgments to be made. Reliability: Medium. Due to the inherent subjectivity of some of these measurements, some variability between different observers is also inherent.
- f) Reporting Period: Annual
- g) Lead responsibility: Area and District Timber Staff Officers
- h) References: 36 CFR § 219.12 (k)(2)

3. **Are harvested forest lands restocked within five years following harvest?**

- a) Type: Implementation
- b) Land Use Designations Affected: All that allow timber harvest
- c) Action or Effect to be Measured: Restocking of all acres of harvested forest land following a regeneration harvest
- d) Sampling Methods: Annually compare the timber harvest units with regeneration harvest prescriptions that are 5 years old with regeneration certification records in the Silviculture Information System (SIS) to identify the units that have not met the NFMA

requirement. Quantify the areas that failed to meet stocking requirements where planting was implemented.

- e) Expected Precision and Reliability. Precision: High. This measurement is very objective, leaving little opportunity for error. Reliability: High. As above, the objective nature of the measurement makes for consistent results.
- f) Reporting Period: Annual
- g) Lead Responsibility: District and Area Timber Staff Officers
- h) Reference: 36 CFR § 219.12 (k)(5)(i)

4. Is the allowable sale quantity (ASQ) and programmed harvest quantity projected in TLMP based on valid assumptions?

- a) Type : Validation
- b) Land Use Designations Affected: All with suitable timber (may be harvested)
- c) Action or Effect to be Measured: New information leading to changes in : (1) timber utilization standards, (2) timber inventory results, (3) timber dispersion requirements, (4) tentatively suitable landbase, (5) yield tables, (6) the operability inventory, (7) projections in the average width of the area managed for riparian, beach fringe and estuarine resources, and, (8) implementation factors applied for : a) streams missing from the channel-type inventories, b) land not available for timber harvest due to their isolation by no-harvest streams corridors, and c) spatial limitations of FORPLAN (the forest planning model).
- d) Sampling Methods: Review and analyze assumptions in TLMP at least every five years, unless major changes in any of the factors listed above are evident earlier. Some of this information can be gathered in conjunction with other monitoring items. Re-run the FORPLAN model using updated information every 5 years.
- e) Expected Precision and Reliability. Precision: Medium. The ability to test the assumptions in FORPLAN and other data that are part of the bases for calculating timber harvest quantity are dependent on the number of variables and data sets involved. Reliability: Medium. Methods of developing timber harvest quantity have not been extremely reliable and are subject to different interpretation by skilled professionals.
- f) Reporting Period: Five years
- g) Lead Responsibility: Regional Timber and Planning Staff Officers

- h) Reference: 36 CFR § 219.27 (b)-(d)

5. How many acres of precommercial thinning have been accomplished?

- a) Type: Implementation.
- b) Land Use Designations Affected: All subject to timber harvest.
- c) Actions or Effects to be Measured: Precommercially thinned areas.
- d) Sampling Methods: Query the Silviculture Information System (SIS) database to determine how many acres of precommercial thinning have been accomplished. Compare with the acreage of precommercial thinning anticipated.
- e) Expected Precision and Reliability. Precision: High. This measurement is very objective, leaving little opportunity for error. Reliability: High. As above, the objective nature of the measurement makes for consistent results.
- f) Reporting Period: Annual
- g) Lead Responsibility: Administrative Area Timber Staff Officers.
- h) References: 36 § 219.12 (k)

6. Are destructive insects or disease organisms a threat to desired Forest health?

- a) Type : Effectiveness
- b) Land Use Designations Affected: All
- c) Action or Effect to be Measured: Areas and acres where insects or disease are a problem.
- d) Sampling Methods: Summarize by Administrative Area information from the annual R-10 report: Forest Insect and Disease Conditions in Alaska. Tabulate results by destructive agent by Administrative Area.
- e) Expected Precision and Reliability. Precision: High. Infestation of insects or disease is fairly quantifiable. Reliability: Medium. The measurements involved are currently being refined through research.
- f) Reporting Period: Annual, in the Regional Conditions Report.

- g) Lead Responsibility: State and Private Forestry, Area Pests Management Staff Officer
- h) Reference: 36 CFR § 219.12 (k)(5)(iv)

J. TRANSPORTATION

Transportation goals are to (1) develop and manage roads to support forest uses and resource management activities and (2) recognize the potential for the future development of major transportation and utility systems.

1. Are forest development roads and Log Transfer Facilities (LTFs) located, constructed, and managed as prescribed in TLMP standards and guidelines?

- a) Type : Implementation
- b) Land Use Designations Affected: All that allow development
- c) Action or Effect to be Measured: Adherence to standards and guidelines for the construction and management of roads log transfer facilities.
- d) Sampling Methods: Annually conduct field inspections on a sample of 10 to 20 percent of the harvest units and their associated roads accepted during the previous year to determine if applicable standards and guidelines have been implemented. The focus of these inspections should be on engineering standards. Compliance with standards and guidelines designed to avoid adverse effects on other resources will be determined by the appropriate resource staff under other specific monitoring tasks listed elsewhere in this monitoring and evaluation plan.
- e) Expected Precision and Reliability. Precision: Medium. Measuring adherence to standards and guidelines will necessitate subjective judgment, especially in aggregating a project's compliance with all applicable standards and guidelines. Reliability: Medium. The subjectivity of the evaluation results in some variation between different observers.
- f) Reporting Period: Annual, with a 5-year detailed report
- g) Lead Responsibility: Area Engineering Staff Officer
- h) Reference: 36 CFR § 219.12 (k)

2. How many miles of contracted road construction have been awarded?

- a) Type: Implementation.

- b) Land Use Designations Affected: Areas where road construction is permitted.
- c) Actions or Effects to be Measured: Contracted road construction.
- d) Sampling Methods: Collect and report this information from the Management Attainment Report. If anticipated outputs are not achieved, determine the cause.
- e) Expected Precision and Reliability. Precision: High. Mileage is easily quantifiable. Reliability: High. No interpretation required.
- f) Reporting Period: Annual
- g) Lead Responsibility: Area Administrative and Planning Staff Officers
- h) References: 36 CFR § 219.12 (k)

3. What are the total miles of timber purchaser road construction and reconstruction?

- a) Type: Implementation.
- b) Land Use Designations Affected: Areas where timber road work is permitted.
- c) Actions or Effects to be Measured: Timber purchaser road work.
- d) Sampling Methods: Collect and report this information from the Management Attainment Report. If anticipated outputs are not achieved, determine the cause.
- e) Expected Precision and Reliability. Precision: High. Mileage is easily quantifiable. Reliability: High. No interpretation is required.
- f) Reporting Period: Annual
- g) Lead Responsibility: Area Administrative and Planning Staff Officers
- h) References: 36 CFR § 219.12 (k)

4. What is the total number of bridges and major culverts contracted for installation?

- a) Type: Implementation.

- b) Land Use Designations Affected: Areas where bridges and culverts are permitted.
- c) Actions or Effects to be Measured: Contracting levels for bridges and major culverts.
- d) Sampling Methods: Collect and report this information from the Management Attainment Report.
- e) Expected Precision and Reliability. Precision: Medium. Most of the parameters are relatively easy to measure, however some are much more difficult to quantify. Reliability: Medium. Some of these parameters are difficult to measure without interpretation, which may vary from one person to the next.
- f) Reporting Period: Annual
- g) Lead Responsibility: Area Administrative and Planning Staff Officers
- h) References: 36 CFR § 219.12 (k)

5. What is the total number of log transfer facilities constructed and reconstructed?

- a) Type: Implementation.
- b) Land Use Designations Affected: Variable.
- c) Actions or Effects to be Measured: Log transfer facility construction and reconstruction.
- d) Sampling Methods: Collect and report this information from the Management Attainment Report.
- e) Expected Precision and Reliability. Precision: High. This information is easily quantifiable. Reliability: High. No interpretation required.
- f) Reporting Period: Annual
- g) Lead Responsibility: Area Administrative and Planning Staff Officers
- h) References: 36 CFR § 219.12 (k)

6. Are the standards and guidelines used for forest development roads and Log Transfer Facilities (LTFs) effective in limiting the environmental effects to anticipated levels?

- a) Type : Effectiveness

- b) Land Use Designations Affected: All that allow development
- c) Action or Effect to be Measured: Environmental effects of forest development roads and log transfer facilities
- d) Sampling Methods: Annually conduct field inspections on a sample of 10 to 20 percent of the harvest units and their associated roads accepted during the previous year and all new LTFs to determine--at least on a qualitative level--whether the standards and guidelines adequately mitigate adverse impacts on other resources, including soil productivity, water quality, and wildlife and fish habitat. Specific areas to be addressed include: (1) Did the road result in mass wasting? Are rock pits draining freely?; (2) Are culverts allowing fish to pass freely?; (3) Are open road densities and maintenance of road closures meeting fish recreation, wildlife and visual quality objectives? Whenever such qualitative reviews identify potential adverse impacts on other resources that cannot be judged by visual observation, follow-up quantitative effects analysis should be performed by the appropriate resource staff under other specific monitoring tasks, as indicated above.
- e) Expected Precision and Reliability. Precision: Medium. Some impacts are not easily quantified. Reliability: Medium. Some subjective judgment is involved, so some variation between different observers is unavoidable.
- f) Reporting Period: Annual, with a 5-year detailed report of findings
- g) Lead Responsibility: Area Engineering and Resource Staff Officers
- h) Reference: 36 § 219.12 (k)(2)

K. WATER

Water goals are to (1) provide water of sufficient quality to meet or exceed Alaska State Water Quality Standards for designated beneficial uses, and (2) to minimize sediment transported to streams from land-disturbing activities.

1. Are Best Management Practices (BMPs) being implemented?

- a) Type : Implementation
- b) Land Use Designations Affected: All with development
- c) Action or Effect to be Measured: Determine if Best Management Practices are being properly implemented on projects.

- d) Sampling Methods: Annually conduct field inspections on a sample of 10 to 20 percent of the harvest units and their associated roads accepted during the previous year to determine if standards and guidelines have been implemented. Monitoring included in this item overlaps with Timber and Fish monitoring items.
- e) Expected Precision and Reliability. Precision: Medium. The implementation of BMPs is relatively quantifiable by trained personnel. Reliability: Medium. Even with training, measuring the implementation of BMPs will necessitate some subjective judgment that may be exercised differently by different observers.
- f) Reporting Period: Annual
- g) Lead Responsibility: Area Watershed Staff Officer, with assistance from Engineering and Timber Staff Officers.
- h) References: 36 CFR § 219.12; Clean Water Act

2. Are Best Management Practices effective in protecting State-designated beneficial uses of water?

- a) Type : Effectiveness
- b) Land Use Designations Affected: All with development
- c) Action or Effect to be Measured: Water quality effects of Forest management activities.
- d) Sampling Methods: Annually conduct field inspections on a sample of 10 to 20 percent of the harvest units and their associated roads accepted during the previous year to determine if standards and guidelines have been implemented. For these projects, determine if the applicable BMPs were effective in protecting water quality and its designated beneficial uses. Such determinations should initially be made on a qualitative basis to the extent feasible. Where a qualitative review is insufficient to determine the effectiveness of the BMPs, conduct more rigorous quantitative analysis. Such quantitative studies should be based on need and available funds.
- e) Expected Precision and Reliability. Precision: Medium. Many of these statistics are relatively quantifiable by trained personnel. Reliability: Medium. Many of these parameters are relatively quantifiable by trained personnel.
- f) Reporting Period: Annual status reports, with comprehensive reports of findings every three years, to correspond with the triennial State water quality standards review.

- g) Lead Responsibility: Area Watershed and Fisheries Staff Officers.
- h) References: 36 CFR § 219.12 (k)(2)

3. Are watershed improvement measures effective in improving water quality?

- a) Type: Implementation.
- b) Land Use Designations Affected: Where watershed improvement activities are permitted.
- c) Actions or Effects to be Measured: Watershed improvements.
- d) Sampling Methods: Collect and report this information from the Management Attainment Report. If anticipated outputs are not achieved, determine the cause.
- e) Expected Precision and Reliability. Precision: High. Acreage is easily quantifiable. Reliability: High. No interpretation required.
- f) Reporting Period: Annual
- g) Lead Responsibility: Area Administrative and Planning Staff Officers
- h) References: 36 CFR § 219.12 (k)

L. WETLANDS

The wetland goals are to (1) minimize the destruction, loss or degradation of wetlands, and (2) preserve and enhance the associated functions (hydrological, water quality, and habitat) and values (biological significance and scarcity).

1. Are wetlands standards and guidelines being implemented as described in TLMP?

- a) Type: Implementation
- b) Land Use Designations Affected: All
- c) Actions or Effects to be Measured: Compliance of land disturbing activities with wetlands standards and guidelines
- d) Sampling Methods: Annually conduct field inspections on a sample of 10 to 20 percent of the harvest units and their associated roads accepted during the previous year to determine if wetlands standards and guidelines have been implemented.

- e) Expected Precision and Reliability. Precision: Medium. The standards and guidelines are qualitative. Professional judgment will be needed to determine hydrologic connections and biological significance. Reliability: Medium. The standards and guidelines are subjective and interpretation may vary from observer to observer. Adequate training and instructions are required to ensure quality observations.
- f) Reporting Period: Annual
- g) Lead Responsibility: Administrative Area Hydrologists
- h) References: 33 CFR § 323.4, Silviculture Exclusion for the Clean Water Act

M. WILD AND SCENIC RIVERS

The Wild and Scenic Rivers goal is to maintain the outstandingly remarkable features of rivers recommended for designation as components of the National Wild and Scenic Rivers System.

1. **Are Wild, Scenic, and Recreational River standards and guidelines being implemented as prescribed in TLMP? (This applies to both the designated components of the National Wild and Scenic River System, and also as interim management direction to those rivers determined to be suitable but not yet designated as part of the System.)**
 - a) Type: Implementation
 - b) Land Use Designations Affected: Wild River, Scenic River, Recreational River
 - c) Action or Effect to be Measured: Compliance of activities with standards and guidelines.
 - d) Sampling Methods: Annually conduct field inspections of at least one river per Administrative Area to document the degree of compliance of Forest Service activities and permitted uses (special use permits and uses authorized by agreements) with applicable standards and guidelines. Rivers selected should be those with the highest probability of human-caused impacts.
 - e) Expected Precision and Reliability. Precision: Medium. Monitoring for authorized activities generally should result in fairly high precision, because the permits are fairly specific about what activities are allowed and when and where they will take place. For other activities, however, monitoring precision will generally be medium because the measurement will inevitably have to generalize compliance with a number of standards and guidelines. Reliability: Medium. The reasons are similar to

those for precision. For authorized activities where managers know when and where specific activities will take place, repeated monitoring should be reliable. However, for Rivers in general, measurements by different observers in different parts of the Rivers may vary substantially.

- f) Reporting Period: Annual
- g) Lead Responsibility: Administrative Area Recreation and Lands Staff Officers
- h) References: 36 CFR § 219.12 (k); 36 CFR § 297; Guidelines for Evaluation, Classification & Management of Wild and Scenic Rivers; Wild and Scenic Rivers Act (Public Law 90-542)

2. Are Wild, Scenic, and Recreational River standards and guides effective in maintaining or enhancing the values for which the river was designated as part of the National Wild and Scenic Rivers System (or found suitable for such designation)?

- a) Type : Effectiveness
- b) Land Use Designations Affected: Wild River, Scenic River, Recreational River
- c) Action or Effect to be Measured: The degree to which human activities in or near designated or suitable components of the National Wild and Scenic Rivers System maintain or enhance the resource values of the rivers.
- d) Sampling Methods: In conjunction with implementation monitoring, annually conduct field inspections of at least one river in each Administrative Area to determine whether human activities are damaging or threatening to damage the values for which the river was designated or found suitable for such designation.
- e) Expected Precision and Reliability. Precision: Medium. The Wild and Scenic River Act is explicit in describing what is allowed and not allowed in River corridors, as well as the objectives for River designation. A field monitoring trip with qualified individuals should be able to fairly precisely assess whether the standards and guidelines are effective in meeting the intent of the Wild and Scenic Rivers Act. Overall assessments will be only moderately precise, however, since they will have to generalize the cumulative effectiveness of a number of standards and guidelines. Reliability: Medium. The reasons are similar to those for precision.
- f) Reporting Period: Annual, in conjunction with Wild and Scenic River implementation monitoring.

- g) Lead Responsibility: Administrative Area Recreation and Lands Staff Officer(s)
- h) References: 36 CFR § 219.12 (k); 36 CFR § 297; Guidelines for Evaluation, Classification & Management of Wild and Scenic Rivers

N. WILDERNESS AND ROADLESS AREAS

Wilderness and roadless area goals are to (1) maintain a wilderness setting consistent with ANILCA on the 5.8 million acres of Wilderness on the Forest, (2) manage the legislatively designated LUD II areas, and other selected roadless areas of local or regional importance to retain their essentially undeveloped character.

1. Are standards and guidelines for the management of wilderness being implemented as described in TLMP?

- a) Type: Implementation
- b) Land Use Designations Affected: Wilderness and Wilderness National Monument
- c) Action or Effect to be Measured: Activities not in compliance with Wilderness standards and guidelines
- d) Sampling Methods: Conduct field monitoring of at least 10 percent of Forest Service permitted uses in Wilderness (special use permits and uses authorized by agreements) annually, to document the degree of compliance with applicable standards and guidelines. In addition, perform a field monitoring trip on at least one Wilderness per year in each Administrative Area to assess compliance with standards and guidelines not related to authorizations and as an overview of the permit compliance within that individual Wilderness.
- e) Expected Precision and Reliability. Precision: Medium. Monitoring for authorized activities generally should result in fairly high precision, because the authorizations are fairly specific about what activities are allowed and when and where they will take place. For other activities, however, monitoring precision will generally be medium because the measurement will inevitably have to generalize compliance with a number of standards and guidelines. Reliability: Medium. The reasons are similar to those for precision. For authorized activities where managers know when and where specific activities will take place, repeated monitoring should be reliable. However, for general Wilderness, measurements by different observers in different parts of the Wilderness may vary substantially.

- f) Reporting Period: Annual
- g) Lead responsibility: Administrative Area Recreation and Lands Staff Officers
- h) References: CFR § 219.12 (k)

O. WILDLIFE HABITAT

Wildlife habitat goals are to (1) maintain dispersed blocks of old-growth habitat of varying sizes throughout the Forest sufficient to ensure the maintenance of well-distributed viable populations of old-growth associated wildlife species, (2) ensure adequate travel and migration corridors between mainland or intra-island blocks, (3) provide sufficient old-growth habitat beyond that required for viability to attempt to meet the demands for consumptive and non-consumptive uses of the wildlife resource, and (4) minimize adverse impacts from human activities through road and facility management.

1. How many acres of non-structural habitat improvements have been completed?

- a) Type: Implementation.
- b) Land Use Designations Affected: Several.
- c) Actions or Effects to be Measured: Non-structural habitat improvements.
- d) Sampling Methods: Collect and report this information from the Management Attainment Report. If anticipated outputs are not achieved, determine the cause.
- e) Expected Precision and Reliability. Precision: High. Acreage is easily quantified. Reliability: High. No interpretation required.
- f) Reporting Period: Annual
- g) Lead Responsibility: Area Administrative and Planning Staff Officers
- h) References: 36 CFR § 219.12 (k)

2. Are habitats for threatened or endangered species being maintained or improved to meet recovery plan objectives? Are habitats being maintained or improved to meet habitat objectives for other species of concern? Has the status of other species of concern changed, or is there a need to change standards and guidelines for these species?

- a) Type: Implementation and Effectiveness

- b) Land Use Designations Affected: All
- c) Action or Effect to be Measured: Acres of habitat affected and population trends for threatened, endangered and sensitive species; updated information on candidate species
- d) Sampling Methods:
 - (1) Whales and Steller Sea Lion. Annually review the files of all projects that could affect habitats for these species to ensure that the contracts and authorizations reflect the appropriate activity restrictions contained in the standards and guidelines. Whenever the opportunity arises to make such observations, determine if project activities avoid these marine mammals as required, and report all violations to the appropriate Forest Service line officer for corrective action.
 - (2) Trumpeter Swan. Sample known trumpeter swan nest sites periodically to determine if the 800-meter "no activity" rule is being followed, and if it is successful in maintaining existing populations.
 - (3) Osprey. Sample osprey nest sites periodically to determine if the habitat zone requirements are being met, and if they are successful in maintaining existing populations.
 - (4) Peale's Peregrine Falcon. Periodically sample known Peale's peregrine falcon nesting sites to determine if the appropriate project activity restrictions are being followed. In cooperation with the US Fish and Wildlife Service, determine if such restrictions are effective in maintaining existing populations.
 - (5) Island King Salmon and Northern Pike. For island king salmon and northern pike, obtain data from the Alaska Department of Fish and Game on population trends. Evaluate whether management of the fisheries is maintaining healthy, viable populations.
 - (6) Fish Creek Chum Salmon. For chum salmon in Fish Creek near Hyder, continue the existing cooperative monitoring program with Alaska Department of Fish and Game. Evaluate whether management of the fishery is maintaining healthy, viable populations.
 - (7) Other Species of Concern. These species include all other species in Southeast Alaska with Candidate Species Status (US Fish and Wildlife Service designation), Sensitive Species Status (US Forest Service designation), and Species of Special Concern Status (Alaska Department of Fish and Game designation). For these species determine whether the

status of the species has changed, and evaluate data collected in studies to determine the need for changes in the standards and guidelines of TLMP.

- e) Expected Precision and Reliability. Precision: Medium. Some parameters are readily quantifiable, others are not. In addition, disturbance may only be evaluated once a year, which may not be often enough to detect all human disturbances. Reliability: Medium. In some cases, evaluation of habitat or population variations may be subjective rather than absolute, and values may vary from observer to observer.
- f) Reporting Period: Annual
- g) Lead Responsibility: Administrative Area Fish and Wildlife Staff Officers
- h) References: CFR § 219.12 (k)

3. Are wildlife habitat standards and guidelines being implemented as described in TLMP?

- a) Type : Implementation
- b) Land Use Designations Affected: All
- c) Action or Effect to be Measured: Compliance of land disturbing projects with wildlife standards and guidelines
- d) Sampling Methods: Annually conduct field inspections on a sample of 10 to 20 percent of the harvest units and their associated roads accepted during the previous year to measure compliance with standards and guidelines. Issues to be addressed should include, but not necessarily be limited to, whether : large deer habitat blocks were considered in project planning; 330-foot eagle nest buffers are being maintained; garbage dumps are closed to protect bears; and facilities and activities are located away from marine mammal haulouts, seabird rookeries, and waterfowl habitats.
- e) Expected Precision and Reliability. Precision: Medium. Adherence to standards and guidelines is difficult to quantify, especially in the aggregate. Reliability: Medium. These measurements will have to be somewhat subjective, and may vary from observer to observer.
- f) Reporting Period: Annual
- g) Lead Responsibility: District and Administrative Area Wildlife Staff Officers
- h) References: 36 CFR § 219.12

4. Are the wildlife standards and guidelines reducing or eliminating adverse human effects from Forest Service activities on important habitats, as anticipated?

- a) Type : Effectiveness
- b) Land Use Designations Affected: All
- c) Action or Effect to be Measured: Effects of human activities on habitats for eagles and bear.
- d) Sampling Methods: Annually, record occupancy rate of at least 5 percent of eagle nest sites near ongoing human activities (within approximately 1/4 mile) and compare to occupancy rates in comparable habitats not associated with human activities. Annually, compile records of bear mortalities not associated with legal hunting seasons to determine whether regulations and project requirements prevent habituation of bears to human foods/garbage and reduce the chances of human-bear incidents.
- e) Expected Precision and Reliability. Precision: Medium. Identifying the locations and recording the use of eagle nests has been occurring by the US Fish and Wildlife Service and the Forest Service for more than 15 years; the techniques are well established. All bear mortalities must be reported to the AK Department of Fish and Game, by law, and an investigation of the kill is made. The results of the investigation indicate the cause of the kill. However, some kills or poaching may go unreported. Reliability: High. For the same reasons that the precision is high, the reliability is also high.
- f) Reporting Period: Annual, with a detailed 5-year report that presents a discussion of the significance of findings.
- g) Lead Responsibility: Administrative Area Wildlife Staff Officer
- h) References: 36 CFR § 219.12 (k)(2), Memorandum of Understanding with US Fish & Wildlife Service on the Bald Eagle

P. RESOURCE BUDGETS

The goal is to provide funding levels necessary to achieve outputs in TLMP.

1. Are the budgets received adequate for achieving the objectives described in TLMP?

- a) Type: Validation.
- b) Land Use Designations Affected: All

- c) Actions or Effects to be Measured: Comparison of the estimated and actual costs for carrying out the forest plan including the monitoring and evaluation plan.
- d) Sampling Methods: Compile resource budget information for all program areas. Document effects of inadequate funding.
- e) Expected Precision and Reliability. Precision: Medium. While budgeting information is easily quantifiable the effects are more subjective. Reliability: Medium. Some interpretation will be required.
- f) Reporting Period: Annual
- g) Lead Responsibility: Area Administrative and Planning Staff Officers
- h) References: 36 CFR § 219.12(d)(3)

Chapter 7

Glossary

Chapter 7

Glossary

These definitions apply to Forest Service land management and planning. Meanings may differ when used in another context. Glossary definitions are not legal unless otherwise noted. Definitions were shortened, paraphrased or adapted to fit local conditions and for ease of understanding.

A

Access	The opportunity to approach, enter, and make use of public lands.
Access management	Acquiring rights and developing and maintaining facilities needed by people to get to and move through public lands (physical attributes).
Acquired Land	Lands in Federal ownership which were obtained by the Government through purchase, condemnation, gift, or by exchange.
Active channel	Unstable portion of a stream where stream channels are frequently changing course.
Activity fuel loading	The amount of burnable debris left after logging.
Adfluvial fish	Species or populations of fish that do not go to sea, but live in lakes, and enter streams to spawn.
Adjudicate	To settle in the exercise of judicial authority. To determine finally (Black. 1979, Black's Law Dictionary).
Administrative site	Lands used as headquarters or administrative facility by a Federal agency.
AFHA	See Anadromous Fisheries Habitat Assessment
Aggradation	The process of building up a land surface by deposition.
AHMu	Aquatic Habitat Management Unit.
AHRS	See Alaska Heritage Resource Survey.
Airshed	Geographical areas which, because of topography, meteorology, and climatic conditions, share the same air mass. Air is managed by airshed.
Alaska Heritage Resource Survey (AHRS)	The official list of cultural resources in the State of Alaska, maintained by the Office of History and Archaeology, Alaska Division of Parks and Outdoor Recreation.
Allowable Sale Quantity (ASQ)	The maximum quantity of timber that may be sold in each decade from suitable scheduled lands covered by the Forest Plan.

Alluvial fan	A cone-shaped deposit of organic and mineral material made by a stream where it runs out onto a level plain or meets a slower stream.
Alluvium	Recent soil deposits resulting from modern rivers, including the sediment laid down in river beds, flood plains, lakes, and at the foot of mountain slopes and estuaries.
Alpine	Parts of mountains above tree growth and/or the organisms living there.
Alternative	One of several options proposed for decision making.
Ambient air	That air, external to buildings, encompassing or surrounding a specific region.
Ambient Air Quality Standard	The prescribed level of pollutants in the outside air that cannot be exceeded legally during a specified time in a specified geographical area.
Amenity	Resource use, object, feature, quality, or experience that gives pleasure or is pleasing to the mind or senses. Amenity value typically describes those resource properties for which monetary values (or market values) are not or cannot be established.
Anadromous fish	Fish which mature and spend much of their adult life in the ocean, returning to inland waters to spawn. Salmon and steelhead are examples.
Anadromous Fisheries Habitat Assessment	An assessment conducted within the Tongass National Forest (1994) to study the effectiveness of current procedures for protecting anadromous fish habitat and determine the need for any additional protection.
Analysis area	An area of land which has the same timber management costs and responses to timber management activities.
ANCSA	The Alaska Native Claims Settlement Act of December 18, 1971. Public Law 92-203, 92nd Congress, 85 Stat. 688-716, which provides for the settlement of aboriginal land claims of the natives and native groups in Alaska.
ANILCA	The Alaska National Interest Lands Conservation Act of December 2, 1980. Public Law 96-487, 96th Congress, 94 Stat. 2371-2551.
Appropriate suppression action	<p>The planned strategy for suppression action (in terms of kind, amount, and timing) on a wildfire which most efficiently meets fire management direction under current and expected burning conditions.</p> <p>Critical protection Areas where human life or habitation are present have priority over all others. Immediate and continuous efforts are made to minimize loss of life and damage to property.</p> <p>Full protection Valuable resources, such as commercial timber stands and historic structures exist; however, no human life or habitation exist in these areas. Immediate and aggressive action is taken to limit the number of acres burned.</p> <p>Modified action Uninhabited; with resources of lesser value. Land managers consider tradeoff of acres burned versus suppression expenses. Fires during critical burning months are attacked, but a lower level of protection is provided when the risks of large, damaging fires is less.</p> <p>Limited action Areas where the cost of fighting the fire is greater than the fire damage. Suppression efforts are limited to keeping a fire within a designated area or protecting critical sites within the areas.</p>

Appropriation of land	The act of selecting, devoting, or setting apart land for a particular use or purpose, such as appropriating land for public buildings and military reservations or other public uses (Black, 1979).
Aquaculture	Maintaining, enhancing, and rehabilitating fish stocks through improvements and facilities, including the rearing of anadromous juvenile fish, generally in fresh water, for release into salt water for maturing, to become available as a common property resource.
Aquatic ecosystem	A stream channel, lake or estuary bed, the water itself, and the biotic communities that occur therein.
Aquatic farm (or Aquafarming)	Growing, farming, or cultivating aquatic products in captivity or under positive control. Current State of Alaska law (AS 16.40.100 - 16.40.199, July 1, 1990), does not allow the aquatic farming of finfish, but does allow the farming of shellfish.
ARC/INFO	ARC/INFO is the name of the Geographic Information System (GIS) software used for the Revision database.
Area of potential effects	The geographic area or areas within which an undertaking may cause changes in the character or use of historic properties, if any such properties exist.
Arterial road	Roads usually developed and operated for long-term land and resource management purposes and constant service.
Associated grave goods	The items placed with human remains at the time of interment.
ASQ	See Allowable Sale Quantity.
Atmospheric dispersion	The lofting and distribution of particulate matter from wood smoke into the atmosphere over time.
Augmentation funds	The funds used to finance timber purchaser constructed or reconstructed road without regard to whether the funds are contributed or supplemental.
Available timberlands	Timberland not withdrawn from use in production of timber products as a result of administrative statute or regulation.

B

Background	The distant part of a landscape. The seen, or viewed, area located from three or five miles to infinity from the viewer. (See "Foreground" and "Middleground".)
Bank	The continuous margin along a river or stream where all upland vegetation ceases.
Beachlog salvage	The salvage of logs that have been washed-up on beaches. Special provisions in ANILCA allow beachlog salvage in Wilderness and National Monuments if it can be conducted without roads or use of vehicles on uplands.

Bedload	Sand, silt, and gravel, or soil and rock debris rolled along the bottom of a stream by the moving water. The particles of this material have a density or grain size which prevents movement far above or for a long distance out of contact with the streambed under natural flow conditions.
Benchmark	An analysis of the supply potential of a particular resource, or set of resources, subject to specific management objectives or constraints. Benchmarks define the limits within which alternatives can be formulated.
Benthic	Pertaining to the sea bottom or to organisms that live on the sea bottom.
Best Management Practices (BMP's)	Land management methods, measures or practices selected by an agency meet its non-point source control needs. BMP's include, but are not limited to structural and nonstructural controls and operation and maintenance procedures. BMP's can be applied before, during and after pollution-producing activities to reduce or eliminate the introduction of pollutants into receiving waters. BMP's are selected on the basis of site-specific conditions that reflect natural background conditions and political, social, economic, and technical feasibility.
Biological diversity	The distribution and abundance of different plant and animal communities and species within the area covered by a land management plan.
Biological potential	The maximum possible output of a given resource limited only by its inherent physical and biological characteristics.
Biomass	The total quantity, at a given time, of living organisms of one or more species per unit area or all of the species in a community.
Biome	The variety of life in an area, including the variety of genetic stocks, species, plant and animal communities, ecosystems, and processes through which individual organisms interact with one another and their environments.
Blowdown	See windthrow.
BMP's	See Best Management Practices.
Board foot	A unit of timber measurement equaling the amount of wood contained in an unfinished board 1 inch thick, 12 inches long and 12 inches wide.
Bole	Trunk of the tree. A tree stem once it has grown to substantial thickness—roughly to that capable of yielding poles, sawlogs, or veneer logs.
Boulders	Rounded or angular rocks greater than 12 inches in size.
Braided streams or channels	A stream flowing in several dividing and reuniting channels resembling the strands of a braid, the cause of division being the obstruction by sediment deposited by the stream.
BTU	British thermal unit. The quantity of heat required to raise the temperature of one pound of water by one degree Fahrenheit.

C

Canopy gap	Openings created in second growth conifer stands by cutting all of the trees in a small area to maintain or increase the number of understory plant species.
Catastrophic event	Events resulting from a great and sudden calamity or disaster. In the case of forest stands such events may include windstorms, wildfire, floods, snowslides, and insect outbreaks. Whether a disturbance event is called catastrophic is dependent on the context within which the event occurs, the scale of the event, and the effects of the event.
Capability	The potential of an area of land to produce resources, supply goods and services, and allow resource uses under an assumed set of management practices and at a given level of management intensity.
Capital investment cost	Costs generally associated with construction such as trails, roads, and physical structures.
Cave	Cave is legally defined under federal law as "any naturally occurring void, cavity, recess, or system of interconnected passages which occurs beneath the surface of the earth or within a cliff or ledge and which is large enough to permit an individual to enter, whether or not the entrance is naturally formed or human-made. Such term shall include any natural pit, sinkhole or other feature which is an extension of the surface," (Federal Cave Resource Protection Act of 1988). Speleologists use "cave" to refer to all parts, regardless of size, of an underground system that links openings and chambers and that may connect the system to the surface. Included in the term caves are tree molds and lava tubes associated with lava flows, erosional caves, and those formed by dissolution of bedrock.
CFL	See Commercial forest land.
CFR	Code of Federal Regulations.
Channel	A passage, either naturally or artificially created, which periodically or continuously contains moving water, or which forms a connecting link between two bodies of water. River, creek, run, branch, and tributary are some of the terms used to describe natural channels. Natural channels may be single or braided. Canal and floodway are some of the terms used to describe artificial channels.
Channel migration	Movement of a stream or river channel within a floodplain area usually over an extended period of time.
Channel type	A means of distinguishing parts of a stream system into segments which have fairly consistent physical and biological characteristics. For descriptions, see "Channel Type Field Guide," Publication R10-MB-6.
Claim	To demand as one's own or as one's right; to assert; to urge; to insist (Black 1979).
Class (streams)	See Stream class.

Class II area (Air)	Geographic area having air quality exceeding the National Ambient Air Quality Standards, which is designated for a moderate degree of protection from future air quality degradation. Moderate increases in new pollution may be permitted.
Clearance	Cultural resources: Certification by the Forest Supervisor documenting that the requirements of 36 CFR 800 have been fully met for each undertaking.
Clearcut	Harvesting method in which all trees are cleared in one cut. It prepares the area for a new, even-aged stand. The area harvested may be a patch, stand, or strip large enough to be mapped or recorded as a separate age class in planning.
CMAI	See Culmination Mean Annual Increment.
Coarse filter	An approach used for wildlife conservation management and analysis which focuses on the characteristics of entire ecosystems and landscapes. (See also "fine filter.")
Coarse gravel	Rounded rocks generally 3/4 of an inch to 3 inches in size.
Cobbles	Rounded rocks between 3 and 12 inches in size.
Colluvial	Soil and material produced by the disintegration and weathering of rocks, including cliff debris, material of avalanches, and alluvium. This material accumulates at the foot of a slope.
Commercial forest land (CFL)	Forest land that is producing or is capable of producing crops of industrial wood and (a) has not been withdrawn by Congress, the Secretary, or the Chief; (b) existing technology and knowledge is available to ensure timber production without irreversible damage to soils productivity, or watershed conditions; and (c) existing technology and knowledge, as reflected in current research and experience, provides reasonable assurance that adequate restocking can be attained within 5 years after final harvesting.
Commodities	Resources with monetary (market) or commercial value; all resource products which are articles of commerce, such as timber and minerals.
Common variety	Deposits of sand, stone, gravel, and others of widespread occurrence not having distinct special value. These deposits are used generally for construction and decorative purposes and are disposed of under the Materials Act of 1947.
Composition	A term in ecology referring to the numbers and types of species, plant communities, and smaller ecosystems within an area.
Condemnation	In real property law, the process by which property of a private owner is taken for public use, without his/her consent, but upon the award of payment for just compensation.
Confined streams	Streams that are confined within their channel banks; controlled by stream incision, geomorphic landform characteristics, and local geological conditions.
Confluence	The point where two streams meet.
Contributed funds	Funds used to pay for a portion of the work or materials needed to construct a road only to the standard needed for a timber sale, which could have properly been paid for by purchaser credits, if available.

Control (Nick) points	Points in streams which are not easily erodible.
Convey	To pass or transmit the title to property from one to another (Black 1979).
Conveyance	An instrument by which some estate or interest in lands is transferred from one person to another (Black 1979); a transfer of legal title to land.
Corridor	A linear strip of land defined for the present or future location of transportation or utility rights-of-way within its boundaries. Also, connective links of certain types of vegetation between patches of suitable habitat which are necessary for certain species to facilitate movement of individuals between patches of suitable habitat.
Cost Efficiency	The usefulness of specified inputs (costs) to produce specified outputs (benefits). In measuring cost efficiency, some outputs, including environmental, economic, or social impacts, are not assigned monetary values, but are achieved at specified levels in the least cost manner. Cost efficiency is usually measured using present net value, although use of benefit-cost ratios and rates-of-return may be appropriate.
Created opening	Openings in the Forest canopy created by silvicultural practices including shelterwood regeneration cutting, clearcutting, seed tree cutting, or group selection cutting.
Critical habitat	Specific terrain within the geographical area occupied by threatened or endangered species, on which are found those physical and biological features that are essential to conservation of the species and which may require special management considerations or protection.
Crown	The tree canopy. The upper part of a tree or woody plant that carries the main branch system and foliage.
Cubic foot	Equivalent to a cube of wood with 1-foot sides. The cubic foot volume is a measure of the total sound wood in a tree and is a more accurate depiction of wood volume than the board foot measure. Forest Service policy is that cubic foot measure will be the basis for timber sales by Fiscal Year 1995 (WO Amendment 2400-92-4, 9/30/92).
Cull logs	Trees that do not meet certain quality specifications.
Culmination Mean Annual Increment (CMAI)	The point at which a tree (or stand) achieves its highest average growth, based on expected growth according to the management intensities and utilization standards assumed in the Forest Plan.
Cultural descendant	A person who, although not necessarily a direct descendant of a particular deceased person, is associated with a cultural religious tradition to which the human remains of the deceased person has significance.
Cultural resources	See Heritage Resources
Cumulative effects	See Effects.
Cumulative watershed effects (CWE)	The effects on a watershed's streams and lakes which result from the incremental impact of individual actions within a watershed when added to other past, present, and reasonably foreseeable future actions, regardless of what agency or person undertakes such other actions. Cumulative watershed effects can result from individually minor but collectively significant actions taking place over a period of time.

D

DBH	See Diameter at Breast Height.
Dead	A standing tree that is completely dead. May be in various stages of decay.
Debris flows	The movement of material resulting from the decay and disintegration of rocks, earth, and other materials.
Debris slides	The rapid downslope movement of a mixture of soil, rock, and forest litter with or without a relatively high water content. Also known as debris avalanches.
Debris torrents	Landslides that occur as a result of debris; avalanche materials which either dam a channel temporarily or accumulate behind temporary obstructions such as logs and forest debris. Debris torrents are usually confined within the stream channel until they reach the valley floor where the debris spreads out, inundating vegetation and forming a broad surface deposit.
Decision criteria	The rules or standards used to evaluate alternatives. They are measurements or indicators that are designed to assist a decision maker in identifying a preferred choice from an array of possible alternatives.
Decks	Cut timber, sawlogs, or cull logs that have been removed from logging units and stacked.
Degradation	The general lowering of the surface of the land by erosive processes, especially by the removal of material through erosion and transportation by flowing water.
Demand	The amount of goods or services that will be consumed if offered over a given range of prices at a particular point in time.
Demographic	Pertaining to the study of the characteristics of human populations, such as size, growth, density, distribution, and vital statistics.
Departure	A timber harvest level that cannot be continued at that level forever.
Detrimental soil disturbance	The condition where established threshold values of soil properties are exceeded and result in significant change or impairment to long-term soil productivity. (See also, Significant change and Significant impairment.)
Detritis	Material, produced by the disintegration and weathering of rocks, that has been moved from its site of origin.
Developed recreation	That type of recreation that occurs where modifications (improvements) enhance recreation opportunities and accommodate intensive recreation activities in a defined area.
Diameter at Breast Height (DBH)	The diameter of a standing tree at a point four feet, six inches from ground level.
Digitize	The act of placing spatial information into a computer.

Discharge velocity	The speed of water outflow from a stream or river over a given period of time.
Discount rate	The rate used to adjust future benefits or costs to their present value.
Dispersed recreation	That type of recreation use that requires few, if any, improvements and may occur over a wide area. This type of recreation involves activities related to roads, trails and undeveloped waterways and beaches. The activities do not necessarily take place on or adjacent to a road, trail, or waterway, only in conjunction with it. Activities are often day-use oriented and include hunting, fishing, boating, off-road vehicle use, hiking, and among others.
Dispersion	To disperse the effects of timber harvest by distributing harvest units more or less uniformly throughout a drainage so that increased runoff and sediment from disturbed sites will be buffered by lower levels of runoff and sediment production from surrounding undisturbed lands.
Dissected landforms	A physical, recognizable form or feature of the earth's surface such as a mountain, hill, or valley, having a characteristic shape, that in part is the result of several shallow or deeply incised drainage channels.
Dissolved oxygen	The amount of free (not chemically combined) oxygen in water.
Distance zone	Areas of landscapes denoted by specified distances from the observer (foreground, middleground, or background). Used as a frame of reference in which to discuss landscape characteristics of management activities.
Diversity	The distribution and abundance of different plant and animal communities and species within the area covered by a land and resources management plan.
Down	A tree or portion of a tree which is dead and laying on the ground.
Draft Environmental Impact Statement (DEIS)	The version of the statement of environmental effects required for major Federal actions under Section 102 of the National Environmental Policy Act (NEPA) and released to the public and other agencies for review and comment. It is a formal document which must follow the requirements of NEPA, the Council on Environmental Quality (CEQ) Guidelines, and directives of the agency responsible for the project proposal. (See also Environmental Impact Statement.)
Duff layer	The general term for vegetation material covering the mineral soils in forests including the fresh litter and well-decomposed organic material and humus.
Dust, fugitive or Fugitive dust	Particulate matter composed primarily of soil which is uncontaminated by industrial activities. Examples are emissions from haul roads and wind erosion.
Dying	A standing tree partially dead above ground and likely to die in the future.

E

Easement	An interest or right in land owned by another that entitles its holder to a specific limited use.
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Ecological provinces	Subdivisions of Southeast Alaska with the following traits: 1) species composition within each province is more similar than between adjacent provinces, 2) patterns in distribution are similar for many kinds of organisms, and 3) historical events (such as glaciers and uplifting) are important to the nature of the province and to the barriers that distinguish each province. 21 ecological provinces have been identified on the Tongass.
Ecosystem	A complete, interacting system of organisms considered together with their environment (for example; a marsh, a watershed, or a lake).
Ecotone	A transition or junction zone between two or more naturally occurring diverse plant communities (ecosystems).
Ecotype	A species of plant or animal that displays different genetic or physiological adaptations. For example, the brown bear in Southeast Alaska is the same species as the grizzly bear in interior Alaska, but the brown bear is smaller than the grizzly.
Effect	In Cultural Resources, the potential of an undertaking to alter the characteristics that may qualify a property for inclusion in the National Register of Historic Places.
Effects	Direct. Results of an action occurring when and where that action takes place. Indirect. Results of an action occurring at a location other than where the action takes place and/or later in time, but in the reasonably foreseeable future. Cumulative. Results of collective past, present, and reasonably foreseeable future actions.
EIS	See Environmental Impact Statement.
Emergent	A plant rooted in shallow water and having most of its vegetation above water (cattails).
Encumbrance	A claim, lien, charge, or liability attached to and binding real property (Black 1979).
Endangered species	Any species of animal or plant that is in danger of extinction throughout all or a significant portion of its range. Plant or animal species identified by the Secretary of the Interior as endangered in accordance with the 1978 Endangered Species Act.
Endemic	Restricted to a particular locality.
Enhance	To improve, reinforce, enrich or strengthen the existing condition, value, or beauty of a resource.
Entitlement	Right to benefits, income or property which may not be abridged without due process (Black 1979).
Environmental analysis	An analysis of alternative actions and their predictable short- and long-term environmental effects, incorporating the physical, biological, economic, social and environmental design arts and their interactions.

Environmental Impact Statement (EIS)	A document prepared by a federal agency in which anticipated environmental effects of a planned course of action or development are evaluated. A federal statute (Section 102 of the National Environmental Policy Act of 1969) requires that such statements be prepared. It is prepared first in draft or review form, and then in a final form. An impact statement includes the following points: (1) the environmental impact of the proposed action, (2) any adverse impacts which cannot be avoided by the action, (3) the alternative courses of actions, (4) the relationships between local short-term use of the human environment and the maintenance and enhancement of long-term productivity, and (5) a description of the irreversible and irretrievable commitment of resources which would occur if the action were accomplished.
Ephemeral channels	A stream that flows in direct response to rainfall and snowmelt but not during dry seasons. Its channel is above the level of the water table.
Equipment fires	Those wildfires originating from the use of equipment in forest operations such as logging, yarding, chainsaws, land clearing, road building, etc.
Erosion	The wearing away of the land surface by running water, wind, ice, gravity or other geological activities.
Escapement	Adult anadromous fish that escape from all causes of mortality (natural or human-caused) to return to streams to spawn.
Estuary	An ecological system at the mouth of a stream where fresh water and salt water mix, and where salt marshes and intertidal mudflats are present. The landward extent of an estuary is the limit of salt-intolerant vegetation, and the seaward extent is a stream's delta at mean low water.
Evaluation	The analysis and interpretation of information collected through monitoring.
EVC	See Existing Visual Condition.
Evapotranspiration	The sum total of water lost from the land by evaporation and plant transpiration. Transpiration is loss of water in vapor form from a plant.
Even-aged management	The application of a combination of actions that result in the creation of stands in which trees of essentially the same age grow together. The difference in age between trees in forming the main canopy level of a stand usually does not exceed 20 percent of that age of the stand at harvest rotation age. Clearcut, shelterwood, or seed tree cutting methods produce even-aged stands.
Exchange	A trading of public lands (surface or subsurface estates) that usually do not have high public value for lands in other ownerships which do have value for public use, management, and enjoyment.
Executive Order	An order or regulation issued by the President or some administrative authority under his direction.
Existing data search	A systematic check and evaluation of available records, documents, and informant sources to gather information pertinent to cultural resources within a given area.

Existing Visual Condition (EVC)	<p>EVC ratings are established to give the land manager an indication of the current level of visual quality and visual evidence of management activities. EVC classes are as follows:</p> <p>Type 1. Appears to be untouched by human activities, except for trails needed for access; only ecological changes have occurred.</p> <p>Type 2. Changes in the landscape are not noticed unless pointed out.</p> <p>Type 3. Changes in the landscape are noticed as minor disturbances, but the natural appearance of the landscape remains dominant.</p> <p>Type 4. Changes in the landscape are easily noticed and perceived as disturbances, but resemble natural patterns.</p> <p>Type 5. Changes stand out as a dominant impression on the landscape, yet are shaped to resemble natural patterns from 3-5 miles or more distant.</p> <p>Type 6. Changes are in glaring contrast to the landscape's natural appearance; excessive visual alteration has occurred.</p>
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F

Facility	Structures needed to support the management, protection, and utilization of the National Forests, including buildings, utility systems, dams, and other construction features. There are three types of facilities: recreation, administrative, and permitted.
Falldown	The difference between the number of acres planned for timber harvest and those actually harvested, usually experienced as a reduction in acres. Falldown results from many factors, including unmapped unsuitable timber land, newly available information, and project-level consideration of site-specific issues and non-timber resource needs.
Feasible	Capable of being accomplished in a successful manner within a reasonable period of time, taking into account economic, environmental, technical, and safety factors. In evaluating feasibility, the following are considerations: 1) the effectiveness and practicality of the measures being considered; 2) the long- and short-term costs of the measures and the effect of those costs on long- and short-term economic viability of projects or programs.
FHAT	See Fish Habitat Assessment Team
FHIP	See Forest Habitat Integrity Program
Fine filter	An approach used for wildlife conservation management and analysis which focuses on individual species and their habitat needs. (See also "coarse filter.")
Fire Management Action Plan	A plan which provides detailed information for, and guides the implementation of, fire management activities for the approved alternative for the Forest Plan.
Fire severity	How hot a fire is for how long. The hotter a fire is and the longer it burns, the more severe it is.
Fire suppression	All the work of extinguishing or confining a fire, beginning with its discovery.
Fiscal Year (FY)	October 1 to September 30. The Fiscal Year is referred to by the calendar year which begins on January 1. For example, October 1, 1991, to September 30, 1992, is referred to as Fiscal Year 1992.

Fish Habitat Assessment Team	The team that conducted the on-the-ground analysis for the Anadromous Fisheries Habitat Assessment
Fish Passage	The ability of both adult and juvenile fish to move both up and down stream.
Fish User Day (FUD)	A recreation visitor day spent fishing or viewing fish.
Flash flooding	A very rapid responding, relatively high streamflow overtopping the banks in any reach of a stream.
Floodplain	That portion of a river valley, adjacent to the river channel, which is covered with water when the river overflows its banks at flood stages.
Fluvial	Of, or pertaining to, streams and rivers.
Foodfish	Fish consumed by humans.
Footslope	The inner, gently inclined surface at the base of a hill or mountain slope. The surface profile is dominantly concave, and is the transition zone between upslope erosional sites and downslope depositional sites.
Forbs	A grouping/category of herbaceous plants which are not included in the grass, shrub or tree groupings/categories; generally smaller flowering plants.
Foreground	A term used in visual management to describe the stand of trees immediately adjacent to a scenic area, recreation facility or forest highway. The area is located less than 1/4 mile from the viewer. (See Background and Middleground.)
Forest Development Transportation Plan	The plan for the system of access roads, trails, and airfields needed for the protection, administration, and utilization of the National Forests and other lands administered by the Forest Service, or the development and use of resources upon which communities within or adjacent to the National Forests are dependent (36 CFR 212.1).
Forest Facility Master Plan	The plan which depicts the development and management of the Forest's facilities. This includes current volume of business and projections for the future, locations for needed skills to perform program work, existing administrative sites and proposed locations of new sites, and management strategies concerning consolidation or sharing services between units (FSM 7312.1).
Forest Habitat Integrity Program	A method of classifying watersheds based on specific resource attributes.
Forest health	A condition where biotic and abiotic influences on the forest (i.e., insects, diseases, atmospheric deposition, silvicultural treatments, harvesting practices) do not threaten management objectives for a given forest unit now or in the future.
Forest Plan	Source of management direction for an individual Forest specifying activity and output levels for a period of 10-15 years. Management direction in the plan is based on the issues identified at the time of the plan's development.
Forested land	Land at least 10 percent occupied by forest trees of any size or formerly having had such tree cover and not currently developed for non-forest use.

Forested wetland	A wetland whose vegetation is characterized by an overstory of trees that are 20 feet or taller.
Forest-wide Standards and Guidelines	Establish the environmental quality, natural renewable and depletable resource requirements, conservation potential, and mitigation measures that apply to several land use designations.
FORPLAN	The forest planning model. A linear programming software package used to analyze planning decisions regarding land use patterns, capital investment, and timber harvest scheduling.
Fragmentation	An element of biological diversity that describes the natural condition of habitats in terms of the size of discrete habitat blocks or patches, their distribution, the extent to which they are interconnected, and the effects of management on these natural conditions.
Free use permit	A permit that allows the removal of timber or other resources from public lands free of charge.
FSH	Forest Service Handbook.
FSM	Forest Service Manual.
FUD	See Fish User Day.
Fuel	The organic materials that will support the start and spread of a fire: duff, litter, grass, weeds, forbs, brush, trees, dead woody materials.
Fuel loading	The volume of the available or burnable fuels in a specified area.
Function	A term in ecology referring to the interreactions and influences between plant and animal species within an area (how each species uses its environment), and to natural processes of change or disturbance (such as wind or aging).
FY	See Fiscal Year.

G

Genetic descendant	A person known or reliably assumed to have a genetic relationship to a deceased person.
Geographic provinces	Subdivisions of Southeast Alaska used to define natural diversity, including areas with distinctive regional climate, physiography, and geology. Seven geological provinces have been identified on the Tongass.
Glacial refugia	The areas of Southeast Alaska that were not covered by glaciers during the last ice age.
Glacial rivers and streams	Rivers and streams that receive their main flow characteristics from the presence and activities of ice and glaciers and their meltwater.

Glide or placid streams	Grouping of channel types (L1 and L2) that have fairly consistent physical characteristics occurring on lowland landforms and are mostly associated with bogs, marshes, or lakes.
Goal	A concise statement that describes a desired future condition normally expressed in broad, general terms that are timeless, in that there is no specific date by which to goal is to be achieved.
Goods and services	The various outputs and on-site uses produced from forest resources.
Groundwater	Water within the earth that supplies wells and springs. Specifically, water in the zone of saturation where all openings in soils and rocks are filled; the upper surface level forms the water table.
Group Selection	A harvesting method in which trees are removed in small groups at a time.
Guideline	A preferred or advisable course of action or level of attainment designed to promote achievement of goals and objectives.
Guyline circle	Guylines are cables to brace the tower (spar) used in cable logging systems. Using the tower as the center, the guyline circle is the area between the tower and where the guylines are anchored. For safety reasons, this area is usually cleared of all trees.

H

Habitat	The sum total of environmental conditions of a specific place occupied by a wildlife or plant species or a population of each species.
Habitat capability	The maximum number of fish or wildlife that a habitat can produce.
Habitat conservation area	A contiguous unit of a particular habitat type to be maintained or managed to perpetuate that habitat. The most common form of "management" is to protect the area from future alterations, and rehabilitate existing altered habitats as needed. For the Tongass, these areas are essentially all blocks of old-growth forest.
Hard snags/soft snags	Terminology used to described the state of the decay process in dead trees. Hard snags are dead trees which have little decay and are generally still hard wood. Soft snags are dead trees which have a considerable amount of decay and are generally soft, broken wood.
Haul out	Areas of land used by marine mammals for resting and other social/biological activities which occur out of the water.
HCA	See Habitat conservation area
Heritage Resources	The physical remains of districts, sites, structures, buildings, networks, events, or objects used by humans in the past. They may be historic, prehistoric, architectural, or archival in nature. Heritage resources are non-renewable aspects of our national heritage.

Historic property	Any prehistoric or historic district, site, building, structure, or object included in, or eligible for inclusion in, the National Register of Historic Places. The term includes artifacts, records, and remains that are related to and located within such properties.
Human remains	The physical remains of human bodies.
Hunter Day	One hunter day is equivalent to one person hunting for any length of time during a 24 hour period.
Humus	Substance of organic origin that is fairly but not entirely resistant to further bacterial decay.
Hydrologic cycle	The complete cycle through which water passes, commencing as atmospheric water vapor, passing into liquid and solid form as precipitation, thence along or into the ground surface, and finally again returning to the form of atmospheric water vapor by means of evaporation and transpiration. Also called Water Cycle.
Hydrophyte	Plants typically found in wet habitats.
I	
IDT	See Interdisciplinary Team.
Ignition	The initiation of combustion.
Implementation	For cultural resources, that point in an undertaking when the proponent has full and complete authorization to proceed with the undertaking.
Improvements	Includes any structures of a permanent nature placed upon the land, which tend to increase its value.
Industrial Wood	All commercial roundwood products, except fuelwood.
Infrastructure	The facilities, utilities, and transportation systems needed to meet public and administrative needs.
Inherent capability	Recreation capability for the physical, social and managerial setting for recreation, based on remoteness from modern human development and activity, modification of the land, and social factors such as crowding.
Integrated Pest Management (IPM)	A process for selecting strategies to regulate forest pests in which all aspects of a pest-host system are studied and weighed. A basic principle in the choice of strategy is that it be ecologically compatible or acceptable.
Intensity	How hot a fire is. Specifically, a measure (in BTU's per foot per second) of the energy released per unit of time in an area of actively burning fire. The amount of heat released per foot of fire front per second.
Inter	To place in a grave or tomb.

Interceptions	The process by which precipitation is caught and held by foliage, twigs, and branches of trees, shrubs, and other vegetation, and lost by evaporation, never reaching the surface of the ground. Interception equals the precipitation on the vegetation minus stemflow and throughfall.
Interest	A general term to denote a right, claim, title, or legal share in real estate (Black 1979).
Interdisciplinary Team (IDT)	A group of individuals with different training assembled to solve a problem or perform a task. The team is assembled out of recognition that no one scientific discipline is sufficiently broad to adequately solve the problem. Through interaction, participants bring different points of view and a broader range of expertise to bear on the problem.
Invertebrate population	That population of creatures without a backbone. Context would depict whether land invertebrates, shore invertebrates, or water invertebrates.
Invertebrates	Animals without a backbone.
IPM	See Integrated Pest Management.
Irretrievable commitments	Applies to losses of production or use of renewable natural resources for a period of time. For example, timber production from an area is irretrievably lost during the time an area is allocated to a no-harvest prescription. If the allocation is changed to allow timber harvest, timber production can be resumed. The production lost is irretrievable, but the action is not irreversible.
Irreversible commitments	Decisions causing changes which cannot be reversed. For example, if a roadless area is allocated to allow timber harvest and timber is actually harvested, that area cannot, at a later date, be allocated to Wilderness. Once harvested, the ability of that area to meet Wilderness criteria has been irreversibly lost. Often applies to nonrenewable resources such as minerals and cultural resources.
Issue	A point, matter, or section of public discussion or interest to be addressed or decided.
K	
Karst	A type of topography that develops in areas underlain by soluble rocks, primarily limestone. Dissolution of the subsurface strata results in areas of well-developed, surface drainage that are sinkholes, collapsed channels, or caves.
L	
Lacustrine wetland	Includes permanently flooded lakes and reservoirs, intermittent lakes, and tidal lakes with ocean-derived salinities of less than 0.5 percent. Typically, there are extensive areas of deep water and there is considerable wave action.
Land allocation	The decision to use land for various resource management objectives to best satisfy the issues, concerns and opportunities and meet assigned forest output targets.
Land exchange	The conveyance of non-Federal land or interests to the United States in exchange for National Forest System land or interests in land.

Land Use Designation (LUD)	<p>(As used in the 1979 Tongass Land Management Plan:) General management direction applied to a Value Comparison Unit or group of Value Comparison Units. These four land use designations are defined as follows.</p> <p>LUD 1. Forest Service recommended Wilderness areas, most of which became Wilderness through the Alaska National Interest Lands Conservation Act. In general, these undeveloped areas are managed for solitude and primitive types of recreation, and contain unaltered habitats for plants and animal species. These areas are managed as directed in the 1964 Wilderness Act, as amended.</p> <p>LUD 2. Lands under this designation are managed in a roadless state to retain their wildland character. Primitive recreational facilities can be built and habitat improvements for fish and wildlife are permitted. Timber harvest on these lands is limited to salvage operations to protect other resources.</p> <p>LUD 3. These lands are managed for a variety of uses. The emphasis is on managing for both amenity and commodity oriented uses in a compatible manner to provide the greatest combination of benefits. These areas usually have high amenity values in conjunction with high commodity values. Allowances in calculated potential timber yield have been made to meet multiple-use coordination objectives.</p> <p>LUD 4. These lands are managed to provide opportunities for intensive development of resources. Emphasis is primarily on commodity, or market resources and their use. Amenity values are also provided for. When conflicts over competing resource uses arise, conflicts would most often be resolved in favor of commodity values. Allowances in calculated potential timber yield have been made to provide for protection of physical and biological productivity.</p>
Land Use Designation (LUD)	(As used in the Tongass Land Management Plan Revision:) A defined area of land specific to which management direction is applied. (See also Land Use Prescriptions.)
Land Use Prescriptions	Specific management direction applied to a defined area of land (land use designation as defined in the Revision) to attain multiple use and other goals and objectives.
Land Utilization Project (LUP)	A unit designated by the Secretary of Agriculture for conservation and utilization under Title III of the Bankhead-Jones Farm Tenant Act (USDA Forest Service, undated, Land Areas of the National Forest System).
Landform	Any physical, recognizable form or feature of the earth's surface, having a characteristic shape, and produced by natural causes. Major forms included are plains, plateaus, and mountains; minor forms are hills, valleys, slopes, eskers, and dunes.
Landslides	The moderately rapid to rapid downslope movement of soil and rock materials that may or may not be water-saturated.
Large Woody Debris (LWD)	Any piece of relatively stable woody material, having a diameter of four inches or greater and a length greater than three feet, that intrudes into a stream channel. Formerly called large organic debris.
Leasable minerals	Generally includes minerals such as coal, oil, gas, phosphate, sodium, potassium, oil shale, sulfur, and geothermal steam.
Lease	An authorization (usually long-term) to possess and use public lands for a fixed period of time.
Leave strips	The result of timber harvest activities where blocks of timber are left after harvest has occurred.

Lifeform	Any living entity, animal or plant.
Locatable minerals	Include gold, silver, lead, zinc, copper, and mercury.
Log Transfer Facilities (LTF)	Formerly referred to as Terminal Transfer Facilities, Log Transfer Facilities include the site and structures used for moving logs and timber products from land-based transportation forms to water-based transportation forms.
Logging slash	The wood residue left on the ground after harvesting. It includes unused logs, uprooted stumps, broken or uprooted stems, tops, branches, and leaves.
Logging systems	<p>Tractor. A system of log transportation in which logs are pulled from the woods to a landing by means of a crawler tractor, skidder, or similar ground-based equipment.</p> <p>High-lead. A system of cable logging in which the working lines are elevated at the landing area by a rigged wooden tree or portable steel spar.</p> <p>Skyline. A system of cable logging in which all or part of the weight of the logs is supported during yarding by a suspended cable.</p> <p>Balloon. A system of cable logging in which the weight of the logs is counteracted by the lift provided by a lighter-than-air balloon.</p> <p>Helicopter. A system of transporting logs from the woods to a landing as an external load on a helicopter.</p>
Long-term Sustained Yield Timber Capacity (LTSY)	The highest uniform wood yield from suitable-scheduled lands that may be sustained in perpetuity consistent with the Forest Plan.
Lows	Atmospheric disturbances that can properly be considered as storms, for they bring changeable, unsettled weather that normally includes widespread, abundant, and often, intensive precipitation.
LTSY	See Long-term Sustained Yield Timber Capacity.
LTF	See Log Transfer Facilities.
LUD	See Land Use Designation. (Note that there are two definitions for Land Use Designation: as used in the 1979 Tongass Land Management Plan and as used in the Tongass Land Management Plan Revision.)
LUP	See Land Utilization Project.
LWD	See Large woody debris.

M

Macrophytes	Any plant species that can be readily observed without the aid of optical magnification.
Managed stand	A stand of trees in which stocking level control is applied to achieve maximum growth.
MAI	See Mean Annual Increment.
Management Area	Combinations of Value Comparison Units having common management direction. As defined in the Tongass Plan Revision.

Management concern	An issue, problem or a condition which constrains the range of management practices identified by the Forest Service in the planning process.
Management direction	A statement of multiple-use and other goals and objectives, the-associated land use prescriptions, and standards and guidelines for attaining them.
Management Indicator Species (MIS)	Species selected in a planning process that are used to monitor the effects of planned management activities on viable populations of wildlife and fish, including those that are socially or economically important.
Management practices	The activities applied to a defined area of land (land use designation as defined in the Revision) to attain multiple-use and other goals and objectives.
Management requirement	Standards for resource protection, vegetation manipulation, silvicultural practices, even-aged management, riparian areas, soil and water and diversity, to be met in accomplishing National Forest System goals and objectives. (See 36 CFR 219.17)
Mariculture	The cultivation of plants and animals in saltwater, with no freshwater component. Mariculture does not include anadromous fish farming.
Marine systems	Of, or belonging to, or caused by, the sea.
Maritime climate	Weather conditions controlled by an oceanic environment characterized by small annual temperature ranges and high precipitation..
Mass-wasting	A general term for a variety of processes by which large masses of earth material are moved by gravity either slowly or quickly from one place to another. Also, mass movement.
MBF	Thousand Board Feet.
Mean Annual Increment (MAI)	The total volume of a stand divided by its age.
Memorandum of Understanding (MOU)	A legal agreement between the Forest Service and others agencies resulting from consultation between agencies that states specific measures the agencies will follow to accomplish a large or complex project. A memorandum of understanding is not a fund obligating document.
Microclimate	The temperature, moisture, wind, pressure, and evaporation (climate) of a very small area that differs from the general climate of the larger surrounding area.
Middleground	The visible terrain beyond the foreground where individual trees are still visible but do not stand out distinctly from the landscape. The area is located from 1/4 to 3-5 miles from the viewer. (See Foreground and Background.)
Mineral development	The activities and facilities associated with extracting mineral deposits.
Mineral entry	Filing a mining claim on public land to obtain the right to mine any minerals it may contain. Also the filing for a mill site on Federal land for the purpose of processing off-site minerals.
Mineral exploration	The search for valuable minerals on lands open to mineral entry.

Mineral lease	A lease which authorizes the development and production of leasible minerals from public lands.
Mineral production	The extraction of mineral deposits.
Mineral rights	The rights of one who owns the mineral estate (subsurface).
Mineral soils	Soils consisting predominantly of, and having its properties determined by, mineral matter. These soils usually contain less than 20 percent organic matter, but can contain an organic surface layer up to within 20 inches of the surface.
Mineral withdrawal	A formal designation by the Secretary of Interior which precludes entry or disposal of mineral commodities under the mining and/or mineral leasing laws.
Minimum viable population	The low end of the number of individuals of a species needed to ensure the long-term existence of the species.
Mining claims	A geographic area of the public lands held under the general mining laws in which the right of exclusive possession is vested in the locator of a valuable mineral deposit.
MIS	See Management Indicator Species.
Mitigate	To lessen or make minimal the severity. For cultural resources, to lessen or minimize an adverse effect upon a cultural resource listed on or eligible for the National Register of Historic Places. The two categories of mitigation most often used are project modification and data recovery.
Mixed conifer	In Southeast Alaska, mixed conifer stands usually consist of the following species: western hemlock, mountain hemlock, Alaska yellow-cedar, redcedar, and Sitka spruce. Shorepine may occasionally be present depending on individual sites. Redcedar is not usually in mixed conifer stands on the Chatham or Stikine areas.
MMBF	Million Board Feet.
Modal	Relating to the statistical mode.
Moderately well-drained soil	Water in these soils is removed from them somewhat slowly, so that the profile is wet for a small, but significant, part of the time.
Modification	See Visual Quality Objectives.
Moisture regime	The variation of moisture content in a specified portion of soil during the year.
Monitoring and Evaluation	A process of collecting significant data from defined sources to identify departures or deviations from expected plan outputs.
Mop-up	Following suppression activities to stop the spread of the fire, the business of extinguishing the fire is called mop-up.
MOU	See Memorandum of Understanding.
Multiple-aged stands	An intermediate form of stand structure between even- and uneven-aged stands. These stands generally have two or three distinct tree canopy levels occurring within a single stand.

Multiple use	The management of all the various renewable surface resources of the National Forest System so that they are used in the combination that will best meet the needs of the American people; making the most judicious use of the land for some or all of the resources or related services over areas large enough to provide sufficient latitude for periodic adjustments in use to conform to changing needs and conditions; that some lands will be used for less than all of the resources; and harmonious and coordinated management of the various resources, each with the other, without impairment of the productivity of the land, with consideration being given to the relative values of the various resources, and not necessarily the combination of uses that will give the greatest dollar return or the greatest unit output.
Muskeg	A muskeg in Southeast Alaska is a type of bog that has developed over thousands of years in depressions, or flat areas on gentle to steep slopes. These bogs have poorly drained, acidic, organic soils materials that support vegetation that can be either sphagnum moss or herbaceous plants or sedges, rushes, and forbs or may be a combination of sphagnum moss and herbaceous plants. These vegetation types may have a lesser abundance of shrubs and stunted trees.

N

National Cooperative Soil Survey (NCSS)	A program consisting of a joint effort of cooperating Federal agencies, land-grant universities, and other state and local agencies to map soils, collect soil data, interpret the maps and data, and promote their use. Federal leadership is provided by the Soil Conservation Service (SCS).
National Environmental Policy Act of 1969 (NEPA)	An act declaring a National policy to encourage productive harmony between man and his environment, to promote efforts which will prevent or eliminate damage to the environment and the biosphere and simulate the health and welfare of man, to enrich the understanding of the ecological systems and natural resources important to the Nation and to establish a Council on Environmental Quality.
National Fire Management Analysis System (NFMAS)	A broad umbrella process to help fire managers identify the most efficient fire program meeting the direction in the Forest plan. This includes information for the planning record on program composition, annual programmed costs, emergency fire fighting costs, expected resource impacts, and net value change.
National Forest Management Act (NFMA)	A law passed in 1976 that amends the Forest and Rangeland Renewable Resources Planning Act and requires the preparation of Forest Plans.
National Forest System(NFS) Land	Federal lands that have been designated by Executive order or statute as National Forests, National Grasslands, or Purchase Units, or other lands under the administration of the Forest Service.
National Register of Historic Places	A register of cultural resources of national, state, or local significance, maintained by the Department of the Interior.
National Wild and Scenic River System	Rivers with outstanding scenic, recreational, geological, fish and wildlife, historic, cultural, or other similar values designated by Congress under the Wild and Scenic Rivers Act for preservation of their free-flowing condition.

Native selection	Application by Native corporations formed under authority of the Alaska Native Claims Settlement Act of 1971 (ANCSA - Public Law 92–203, 85 Stat. 688) and by Native individuals (under Section 14(h)(5), ANCSA) to the USDI Bureau of Land Management (BLM) for conveyance of a portion of lands withdrawn under ANCSA in fulfillment of Native entitlements established under ANCSA. Native village corporations had three years from the date of ANCSA (December 18, 1971) to make their selections and regional corporations had four years. Native individuals who met the criteria had two years from the date of ANCSA to make application under Section 14(h)(5). BLM regulations allowed Native corporations formed under ANCSA to select in excess of their entitlements to ensure sufficient land would be available to meet full entitlement. Remaining lands in excess of entitlement which have been selected but not conveyed will revert back to unencumbered National Forest System land status after full entitlement is reached.
Net public benefit	The overall long-term value to the Nation of all outputs and positive effects (benefits) less all associated inputs and negative effects (costs) whether they can be quantitatively valued or not. Net public benefits are measured by both quantitative and qualitative criteria rather than a single measure or index.
Net sawlog volume	Trees suitable in size and quality for producing logs that can be processed into lumber. In Southeast Alaska, depending on the market, the volume may be processed as pulp or lumber.
Net willingness-to-pay	The amount that a person would have paid for an activity above and beyond what the person actually did pay for that activity.
NIC	See Non-interchangeable Components
No action alternative (Alternative C)	The most likely condition expected to exist in the future if current management direction were to continue unchanged.
No adverse effect	When the effect on a cultural resource would not be considered harmful to those characteristics that qualify the property for inclusion in the National Register.
Noncommercial species	Species that have no economic values at this time nor anticipated timber value within the near future.
Non-declining even flow	A policy governing the volume of timber removed from a National Forest, which states that the volume planned for removal in each succeeding decade will equal or exceed that volume planned for removal in the previous decade.
Nonforest land	Land that has never supported forests and lands formerly forested but now developed for such nonforest uses as crops, improved pasture, etc.
Non-interchangeable Components	<p>Portions of the allowable sale quantity that are scheduled and tracked as individually accountable categories. Chargeable timber volume from one non-interchangeable component cannot be substituted for the achievement of the volume limit of another component, nor can the limits on timber volume associated with each non-interchangeable component be exceeded. For the Revised Supplement two non-interchangeable components, or NIC's, are used:</p> <p>NIC I. Normal operable volume scheduled from suitable lands that are available for harvest using existing logging systems (e.g. high-lead, single-span skyline, and</p>

shovel). This is the best (most economic) operable ground and is typically where the Forest has been offering sales since 1980.

NIC II. Non-standard operable volume scheduled from suitable lands that are available for harvest using advanced logging systems not in common use (e.g. helicopter, balloon, and multi-span skyline). These lands are presently considered economically and technologically marginal. This volume component has rarely been economic in the past, and usually only attained by additional investment (i.e., pre-roading and advanced logging technology).

Nonmarket Products derived from National Forest resources that do not have a well-established monetary (market) value, for example, wilderness, wildlife. (Noncash economic benefits.)

Nunatak An isolated hill or peak which projects through the surface of a glacier.

O

Objectives The precise steps to be taken and the resources to be used in achieving goals.

Off-Highway Vehicle (OHV) Any vehicle which is restricted by law from operating on public roads for general motor vehicle traffic. Includes motorbikes, minibikes, trailbikes, snowmobiles, dunebuggies, all-terrain vehicles, and four-wheel drive, high clearance vehicles (FSM 2355.01). Sometimes referred to as Off-Road Vehicle or "ORV".

OHV See Off-Highway Vehicle.

Old growth Ecosystems distinguished by old trees and related structural attributes. Old growth encompasses the later stages of stand development that typically differ from earlier stages in a variety of characteristics which may include larger tree size, higher accumulations of large dead woody material, multiple canopy layers, different species composition, and different ecosystem function. The structure and function of an old-growth ecosystem will be influenced by its stand size and landscape position and context.

Open road density The length of forest development roads open for public access and use per unit area of land; usually expressed as miles of open road per square mile of land.

Operability Operability refers to timber harvest operability, defined as the method(s) of timber harvest necessary to get the trees from stump to landing. There are three different classes of operability: normal (tractor and highlead cable), difficult (long span skyline), and isolated (helicopter).

Operation and maintenance costs Costs associated with operating and maintaining facilities, program management, and support costs associated with management of other resources.

ORACLE A relational database management system software package.

Order three inventory	A level of soil surveys made for extensive land uses that do not require precise knowledge of small areas or detailed soils information. Such survey areas are usually dominated by a single land use and have few subordinate uses. This information can be used in planning for range, forest, recreational areas, and similarly extensive land uses and in community planning.
Order four inventory	A soil survey level made for extensive land uses that require general information for broad statements concerning land-use potential and general land management. This information can be used in locating, comparing, and selecting suitable areas for major kinds of land use in regional land-use planning, and in selecting areas for more intensive study and investigation.
Ordinary high water mark	The mark along the bank or shore up to which the presence and action of the nontidal water are common and usual, and so long continued in all ordinary years, as to leave a natural line impressed on the bank or shore and indicated by erosion, shelving, changes in soil characteristics, destruction of terrestrial vegetation, or other distinctive physical characteristics. (Consult 11 AAC 53.900 — Alaska Code.)
Organic soils	Soils which contain a high percentage (greater than 15 percent) of organic matter throughout the soil depth.
ORV	Off-Road Vehicle. (See Off-Highway Vehicle.)
Other forest Land	Unproductive forest land incapable of yielding crops of industrial wood because of adverse site conditions.
Output	The measurable goods, end products, or services resulting from management activities that are purchased, consumed, or used directly by people.
Overflow	High runoff which overflows natural stream and river banks. Also known as flooding.
Overmature	The stage at which a tree declines in vigor and soundness, for example, height growth has usually stopped and probability of mortality is high.
Overselection	Unconveyed lands selected in excess of entitlement. Overselections by the State of Alaska are authorized in Section 906 (f), ANILCA. They are authorized for Native Corporations organized under ANCSA in Federal Regulations (43 CFR 2650).
Overstory	The portion of trees in a forest which forms the upper most layer of foliage.

P

Palustrine wetland	Includes all nontidal wetlands dominated by trees, shrubs, persistent emergents, emergent mosses or lichens and all such wetlands that occur intidal areas where salinity due to ocean derived salts is below 0.5 percent.
Parent material	The unconsolidated, and more or less chemically weathered, mineral or organic matter from which soils develop.
Partial cut	Any cutting in which only part of the stand is harvested. This may include thinning, selection, shelterwood, or an overstory removal.

Partial retention	See "Visual Quality Objectives."
Parts per million (PPM)	A measurement of concentration indicating the quantity of a substance per unit volume of a solution.
Parturient	Of or relating to giving birth.
Payments to states	A fund consisting of approximately 25 percent of the gross annual timber receipts received by the National Forests in that state. This is returned to the State for use on roads and schools.
Peak flow	The highest discharge of water recorded over a specified period of time at a given stream location. Often thought of in terms of spring snowmelt, summer, fall or winter rainy season flows. Also called maximum flow.
Personal use	Personal use refers to the green or dried timber that residents may harvest free of charge for personal use, and not for sale, from National Forests in Alaska. The amount of material granted to any one person in one year shall not exceed 10,000 board feet of saw timber and 25 cords of wood or an equivalent volume in other forms (36 CFR 223.10).
pH	The degree of soil acidity or alkalinity.
Plan of operations	A plan of operations is required from anyone whose proposed operations, under the 1872 Mining Law, would cause, "significant surface disturbance." It is a document by which mineral operators identify themselves, describe the work they intend to do, where and when they intend to do it, the nature of any proposed disturbance of surface resources, and the steps they will take to protect these resources. An approved plan of operations is basically an agreement between the Forest Service and the operator. The operator agrees to observe necessary and reasonable precautions, spelled out in this plan, to reduce damage to surface resources during operation activities and to rehabilitate disturbed areas as and when feasible. In turn, the Forest Service agrees that protection of surface resources will be adequate if operations are carried out in accordance with the provisions of the approved plan.
Plan period	The period of time a Forest Plan is in effect, normally 10 years, but no longer than 15 years.
Planning area	The area of the National Forest System controlled by a decision document.
Planning horizon	The overall time period considered in the planning process that spans all activities covered in the analysis or plan and all future conditions and effects of proposed actions which would influence the planning decisions.
Planning period	Generally one decade. The time interval within the planning horizon that is used to show incremental changes to yields, costs, effects, and benefits.
Planning records	A system that records decisions and activities that result from the process of developing a forest plan, revision, or significant amendment.
Plant association	Climax plant community type.
Plant communities	A homogeneous unit in respect to the number and relationship of plants in the tree, shrub, and ground cover strata.

Plant communities	Aggregations of living plants having mutual relationships among themselves and to their environment. More than one individual plant community.
Point source (pollution)	A point at which pollution is added to a system, either instantaneously or continuously. An example is a smokestack.
Pole	An immature tree between 5 and 9 inches diameter breast height.
Pollution	The presence of matter or energy whose nature, location, or quantity produces undesired environmental effects.
Pond log value	Selling value minus manufacturing costs. Pond log values are the price a timber buyer would pay for a log at the mill site.
Poorly drained soils	Water in these soils is removed so slowly that the soil remains wet for a large part of the time. The water table is commonly at or near the surface during a considerable part of the year.
Population	The actual number of animals or plants present in an area certain time.
Population viability	Ability of a population to sustain itself.
Positive control	The condition that exists when fish and other mobile species are enclosed in an escape-proof barrier for rearing and other clams (bivalves) or aquatic plants are managed for cultivation in unenclosed water.
Potential yield	The maximum, perpetual, sustained-yield harvest attainable through intensive forestry on regulated areas considering the productivity of the land, conventional logging technology, standard cultural treatments, and interrelationships with other resource uses and the environment.
PPM	See Parts per million.
Practicable	In reference to the Alaska Coastal Management Plan, fully consistent with enforceable policies of approved management programs unless compliance is prohibited based upon the requirements of existing law applicable to the Federal agency's operations.
Present Net Value (PNV)	The difference between the discounted value (benefits) of all outputs to which monetary values or established market prices are assigned and the total discounted costs of managing the planning area.
Prescribed fire	A wildland fire burning under planned conditions to accomplish specific land and resource objectives. It may result from either a management or natural ignition.
Preservation	A technique of conservation which maintains the resource in or on the ground in perpetuity.
Prevention of Significant Deterioration (PSD)	The process incorporated in the Clean Air Act which requires emission limitations for certain new or modified sources. (See also Class II Area.)
Primary stream production	Results from photosynthesis by green plants. In streams, includes production from algae and aquatic plants, and from non-stream sources such as leaf litter.

Primary succession	Vegetation development is initiated on newly formed soils or upon surfaces exposed for the first time (as by landslides) which have, as a consequence, never borne vegetation before. Any succession beginning on a bare area not previously occupied by plants or animals.
Priority use	A Forest Service commitment to the holder of a permit for outfitting and guiding to give priority consideration to granting the holder a specific amount of available future use.
Process Group	A combination of similar channel types based on major differences in landform, gradient and channel shapes.
Programmatic Environmental Impact Statement	The document disclosing the environmental consequences of a program or plan which guides or prescribes the use of resources, allocates resources, or establishes rules and policies in contrast to disclosure of the environmental consequences of a site-specific project.
Proponent	An agency, institution, or individual applying to perform an activity on National Forest System lands under authority of a mining plan of operation, contract, license, special use authorization, or other agreement.
Project	One or more site-specific activities designed to accomplish a specific on-the-ground purpose or result.
PSD	See Prevention of Significant Deterioration.
Public issue	A subject or question of widespread public interest relating to management of the National Forest System.
Public participation	Meetings, conferences, seminars, workshops, tours, written comments, responses to survey questionnaires, and similar activities designed and held to obtain comments from the public about Forest Service planning.
Purchase unit	A unit designated by the Secretary of Agriculture or previously approved by the National Forest Reservation Commission for purposes of Weeks Law acquisition. (USDA Forest Service, undated, Land Areas of the National Forest System)
Purchaser road credit	Credit earned by the purchaser of a National Forest timber sale by construction of contract-specified roads. Earned purchaser credit may be used by the purchaser as payment for National Forest timber removed.

R

Real dollar value	A monetary value which compensates for the effects of inflation.
Reconstruction	Road or trail construction activities which take place on an existing road or trail and raise the standard of the road or trail. This can include relocation of the facility in a completely new location.
Recreation capacity	The number of people that can take advantage of the supply of a recreation opportunity during an established use period without substantially diminishing the quality of the recreation experience or the resources.

**Reburial and
reinterment**

The replacement of disinterred human remains into the ground or otherwise disposing of such remains in a manner likely to approximate the wishes of the deceased (e.g., placement in burial caves, legal cemeteries, surface mortuary structures, or cremation where traditionally practiced).

**Recreation
Opportunity Spectrum
(ROS)**

A system for planning and managing recreation resources that categorizes recreation opportunities into six classes. Each class is defined in terms of the degree to which it satisfies certain recreation experience needs based on the extent to which the natural environment has been modified, the type of facilities provided, the degree of outdoor skills needed to enjoy the area and the relative density of recreation use. The seven classes are:

Primitive. An unmodified environment generally greater than 5,000 acres in size and located generally at least 3 miles from all roads and other motorized travel routes. A very low interaction between users (generally less than 3 group encounters per day) results in a very high probability of experiencing solitude, freedom, closeness to nature, tranquility, self-reliance, challenge, and risk. Evidence of other users is low. Restrictions and controls are not evident after entering the land unit. Motorized use is rare.

Semi-Primitive Non-motorized. A natural or natural-appearing environment generally greater than 2,500 acres in size and generally located at least 1/2 mile but not further than 3 miles from all roads and other motorized travel routes. Concentration of users is low (generally less than 10 group encounters per day), but there is often evidence of other users. There is a high probability of experiencing solitude, freedom, closeness of nature, tranquility, self-reliance, challenge, and risk. There is a minimum of subtle on-site controls. No roads are present in the area.

Semi-Primitive Motorized. A natural or natural-appearing environment generally greater than 2,500 acres in size and generally located within 1/2 mile of primitive roads and other motorized travel routes used by motor vehicles; but not closer than 1/2 mile from better-than-primitive roads and other motorized travel routes. Concentration of users is low (generally less than 10 group encounters per day), but there is often evidence of other users. There is a moderate probability of experiencing solitude, closeness to nature, and tranquility along with a high degree of self-reliance, challenge, and risk in using motorized equipment. Local roads may be present, or along saltwater shorelines there may be extensive boat traffic.

Roaded Natural. Resource modification and utilization are evident, in a predominantly naturally-appearing environment generally occurring within 1/2 mile from better-than-primitive roads and other motorized travel routes. Interactions between users may be moderate to high (generally less than 20 group encounters per day), with evidence of other users prevalent. There is an opportunity to affiliate with other users in developed sites but with some chance for privacy. Self-reliance on outdoor skills is only of moderate importance with little opportunity for challenge and risk. Motorized use is allowed.

Roaded Modified. Vegetative and landform alterations typically dominate the landscape. There is little on-site control of users except for gated roads. There is moderate evidence of other users on roads (generally less than 20 group encounters per day), and little evidence of others or interactions at campsites. There is opportunity to get away from others but with easy access. Some self-reliance is required in building campsites and use of motorized equipment. A feeling of

independence and freedom exists with little challenge and risk. Recreation users will likely encounter timber management activities.

Rural. The natural environment is substantially modified by land use activities. Opportunity to observe and affiliate with other users is important as is convenience of facilities. There is little opportunity for challenge and risk and self-reliance on outdoor skills is of little importance. Recreation facilities designed for group use are compatible. Users may have more than 20 group encounters per day.

Urban. Urbanized environment with dominant structures, traffic lights and paved streets. May have natural appearing backdrop. Recreation places may be city parks and large resorts. Opportunity to observe and affiliate with other users is very important as is convenience of facilities and recreation opportunities. Interaction between large numbers of users is high. Outdoor skills, risk, and challenge are unimportant except for competitive sports. Intensive on-site controls are numerous.

Recreation places	Identified geographical areas having one or more physical characteristics that are particularly attractive to people engaging in recreation activities. They may be beaches, streamside or roadside areas, trail corridors, hunting areas of the immediate area surrounding a lake, cabin site, or campground.
Recreation Visitor Day (RVD)	A measure of recreation use of an area. One recreation visitor day consists of 12 hours of recreation use of a site or area. Recreation visitor days are used to measure recreation production or output capacity.
Reducing soil condition	An environment in the soil conducive to the removal of oxygen and chemical reduction of ions caused by saturated soil conditions.
Reforestation	The natural or artificial restocking of an area usually to produce timber and other wood products, but also to protect watersheds, prevent soil erosion, and improve wildlife, recreation and other natural resources. Natural reforestation includes site preparation to reduce competing vegetation and provide a mineral seed bed for seed provided by seed trees. Artificial reforestation is the planting of seedlings, cuttings or seeds by hand or mechanical means and may include site preparation.
Regeneration treatment	Treatments and activities that relate to the reestablishment of stands of trees. Includes planting, seeding, and preparing the ground for seeding from adjacent stands where ground preparation is not necessary.
Regulated volume	The quantity of timber in the allowable sale quantity that is based on the growth and yield projections for growing stock.
Rehabilitation	Actions taken to protect or enhance site productivity, water quality, or other values for a short period of time.
Relinquish	To abandon, to give up, to surrender, to renounce some right or thing (Black 1979).
Research and Experiment Area	A unit reserved and dedicated by the Secretary of Agriculture for forest or range research and experimentation. (USDA Forest Service, undated, Land Areas of the National Forest System)

Research design	A statement of work to be done toward a particular goal. The research design details what will be done, how it will be done, what is required to do it, and why it is important or useful to do the work .
Research Natural Area (RNA)	An area in as near a natural condition as possible, which exemplifies typical or unique vegetation and associated biotic, soil, geologic, and aquatic features. The area is set aside to preserve a representative sample of an ecological community primarily for scientific and educational purposes; commercial and most public uses are not allowed.
Reserve	A general term for an area of land recognized for, and managed to preserve or maintain, specific natural features. Wilderness is one common example. In the context of wildlife or fish habitat management, or biological diversity, an area set aside for the maintenance and perpetuation of its habitat or ecosystem features. (See also habitat conservation areas.)
Reserve trees	Live or dead trees that are retained for various resource objectives such as wildlife, structural diversity, etc.
Resident fish	Fish that are not migratory and complete their entire life cycle in fresh water.
Resource values	The tangible and intangible worth of forest resources.
Responsible Official	The Forest Service employee who has the delegated authority to make a specific decision.
Restoration	The long-term placement of land back into its natural condition or state of productivity.
Retention	The amount of commercial forest land removed from the timber base to protect other resource values.
Revegetation	The re-establishment and development of a plant cover. This may take place naturally through the reproductive processes of the existing flora or artificially through the direct action of reforestation or reseeding.
Riffles	Shallow rapids in an open stream, where the water surface is broken by waves caused by wholly or partially submerged obstructions.
Right-of-Way	An easement, license, or permit to pass through another person's land. It does not grant an estate of any kind, only the right to use.
Riparian area	The area including a stream channel, lake or estuary bed, the water itself, and the plants that grow in the water and on the land next to the water.
Riparian ecosystem	Land next to water where plants that are dependent on a perpetual source of water occur.
Riparian management area	The area including water, land and plants that is at least 100 slope feet away from each side of perennial streams, lakes and other bodies of fresh water.
Riverine wetland	A category in wetland classification which includes all wetlands and deepwater habitats contained within a channel, with two exceptions: (1) wetlands dominated by trees, shrubs, persistent emergents, emergent mosses or lichens, and (2) habitats with water containing ocean-derived salts in excess of 0.5 percent.

RNA	See Research Natural Area.
Road density	The number of road miles per square mile of land area.
Roadless area	An area of undeveloped public land within which there are no improved roads maintained for travel by means of motorized vehicles intended for highway use.
Road Maintenance Level	<p>Defines the level of service provided by, and maintenance required for, a specific road, consistent with road management objectives and maintenance criteria (FSH 7709.58, section 12.3).</p> <p>Maintenance Level 1. Assigned to intermittent service roads during the time they are closed to vehicular traffic. The closure period is one year or longer. Basic custodial maintenance is performed.</p> <p>Maintenance Level 2. Assigned to roads open for use by high clearance vehicles. Passenger car traffic is not a consideration.</p> <p>Maintenance Level 3. Assigned to roads open and maintained for travel by a prudent driver in a standard passenger car. User comfort and convenience are not considered priorities.</p> <p>Maintenance Level 4. Assigned to roads that provide a moderate degree of user comfort and convenience at moderate travel speeds.</p> <p>Maintenance Level 5. Assigned to roads that provide a high degree of user comfort and convenience. Normally, roads are double-laned and paved, or aggregate surfaced with dust abatement.</p>
ROS	See Recreation Opportunity Spectrum.
ROS Existing	See ROS Inventoried.
ROS Inventoried	A general inventory of the physical, social and managerial setting for recreation, based on remoteness from modern human development and activity, modification of the land, and social factors such as crowding.
Rotation	The planned number of years between the formation or the regeneration of a crop or stand of trees and its final cutting at a specified stage of maturity.
Rotation age	The age of a stand when harvested at the end of a rotation.
RPA	Forest and Rangeland Renewable Resources Planning Act.
RPA Assessment and Program	<p>The RPA Assessment is prepared every ten years and describes the potential of the nation's forests and rangelands to provide a sustained flow of goods and services.</p> <p>The RPA Program is prepared every five years to chart the long-term course of Forest Service management of the National Forests, assistance to State and private landowners, and research. They are prepared in response to Sections 3 and 4 of the Forest and Rangeland Renewable Resources Planning Act of 1974 (RPA) (16 U.S.C. 1601).</p>
Rubble	All accumulations of loose angular rock fragments, commonly overlying outcropping rock.
Rural development	Rural Development is the management of human, natural, technical, and financial resources needed to improve living conditions, provide employment opportunities, enrich the cultural life, and enhance the environment of rural America. In the National Forest System, rural development is accomplished through partnerships.

S

Saleable minerals	Include common varieties of sand, stone, gravel, pumice, pumicite, cinders, and clay. In general, these minerals are of wide-spread occurrence and are of relatively low unit value. They are generally used for construction materials and for road building purposes.
Salvage harvest	Removal of dead or dying trees resulting from insect and disease epidemics or wildfire.
Saturated soils	Soil condition where all the spaces between soil particles are filled with water.
Sawlogs (Sawtimber)	That portion of a tree that is suitable in size and quality for the production of dimension lumber collectively known as sawtimber.
Scoping	Determination of the significant issues to be addressed in an environmental impact statement.
Scree	An accumulation of loose stones or rock debris lying on a slope or at the base of a cliff.
Scrub-Shrub wetland	Wetlands dominated by woody vegetation less than 20 feet tall. The species include true shrubs, young trees, and trees or shrubs that are small or stunted because of environmental conditions. In Southeast Alaska this includes forested lands where trees are stunted because of poor soil drainage.
Second growth	Forest growth that has come up naturally or has been planted after some drastic interference (for example, clearcut harvest, serious fire, or insect attack) with the previous forest growth.
Secondary stream production	Results from consumption by animals of materials produced in primary production in streams; this includes production of macroinvertebrates and some fish species.
Secondary succession	The process of reestablishing vegetation after normal succession is disrupted by fire, cultivation, lumbering, windthrow, or any similar disturbance.
Sediment	Solid material, both mineral and organic, that is in suspension, is being transported, or has been moved from its site of origin by air, water, gravity, or ice and has come to rest on the earth's surface either above or below sea level.
Seed tree	Small number of seed-bearing trees left singly or in small groups after timber harvest to provide seed for regeneration of the site.
Selection cutting	The annual or periodic removal of trees (particularly the mature), individually or in small groups from an uneven-aged forest to achieve the balance among diameter classes needed for sustained yields, and in order to realize the yield, and establish a new crop of irregular constitution. Note: The improvement of the Forest is a primary consideration.
Selection system	A silviculture system in which trees in an uneven-aged stand are removed individually, here and there, from a large area each year in order to achieve a balance among diameter classes needed for sustained yield by selection cutting.

Sensitive species	Plant or animal species which are susceptible or vulnerable to activity impacts or habitat alterations. Species that have appeared in the Federal Register as proposed for classification and are under consideration for official listing as endangered or threatened species, that are on an official state list, or that are recognized by the Regional Forester as needing special consideration to assure viable populations and to prevent their being placed on Federal or state lists.
Sensitive travel route	A road system or marine water way which receives a moderate to high degree of use by the public, both Alaskan residents and tourists.
Sensitivity level	A measure of the people's concern for the scenic quality of the National Forest applied to travel routes, use areas, and water bodies.
Sensitivity zone	A body of land which has been classified on the basis of cultural and environmental data, as having a high, medium, or low likelihood for containing cultural resources.
Settlement sale	The disposition of timber or other national forest products, cut, damaged or destroyed in conjunction with an authorized occupancy of a right-of-way or other use of National Forest Land. In wilderness it would be the sale of timber removed from an inholding access road or privately developed hatchery site. Also, the compensation of the United States for property taken or rendered unusable for other purposes incidental to some lawful use of National Forest land. When timber has a value, clearing the land for some use other than growing timber constitutes a forced sale.
Shelterwood harvest	The removal of a stand of trees through a series of cuttings designed to establish a new crop with seed and protection provided by a portion of the stand.
SHPO	See State Historic Preservation Officer.
Significant change	(Soils) Change in productivity of the land as indicated by changes in soil properties that are expected to result in a reduced productive capacity over the planning horizon. Based on available research and current technology, a guideline of 15 percent reduction in inherent soil productivity potential is used as a basis for setting threshold values for measurable or observable soil properties or conditions. The threshold values, along with areal extent limits, will serve as an early warning signal of reduced productive capacity. A more stringent basis than 15 percent can be used where appropriate and documented.
Significant impairment	(Soils) Changes in the productivity of the land as indicated by changes in soil properties which would result in significant changes in the inherent productive capacity that last beyond the planning horizon.
Silvicultural system	A management process whereby forests are tended, harvested, and replaced resulting in a forest of distinctive form. Systems are classified according to the method of carrying out the process (See single-tree selection, shelterwood cutting, group selection, even-aged management, uneven-aged management, and clearcut).
Silviculture	The science and art of growing and tending crops of forest trees to attain the desired level of marketable and unmarketable products.

Significant surface disturbance	Changing the above-ground environment so much that returning that site to the condition it was in before the change is difficult or impossible. Road construction, use of mechanical earthmoving equipment including backhoes and bulldozers, construction of buildings, and cutting of timber are all examples of activities that are considered to cause significant disturbance to surface resources. An evaluation of proposed operations must be made on a case by case basis to determine if disturbance is considered significant. For example, a mining activity in an alpine area may result in significant disturbance that takes years to reclaim while the same activity conducted at a lower elevation where natural conditions are not as severe may result in a disturbance that would take only a few months to successfully reclaim.
Single-tree selection	A cutting method to develop and maintain uneven-aged stands by removal of selected trees from specified age classes over the entire stand area in order to meet a predetermined goal of age distribution and species in the remaining stand.
Site index	A measure of the relative productive capacity of an area for growing wood. Measurement of site index is based on height of the dominant trees in a stand at a given age.
Site preparation	Removing unwanted vegetation and debris from a site and preparing the soil before reforestation.
Site productivity	Production capability of specific areas of land.
Skyline logging	See "Logging systems".
Slash	Debris left after logging, pruning, thinning, or brush cutting, and large accumulations of debris resulting from windstorms. It includes logs, bark, branches, and stumps.
Slope distance	Distance measured along the contour of the ground.
Slough	A section of an abandoned river channel containing stagnant water and occurring on a floodplain or delta.
Smolt	A young silvery-colored salmon or trout which moves from freshwater streams to saltwater.
Snag	A non-living standing tree usually greater than 5 feet tall and 6 inches in diameter at breast height. The interior of the snag may be sound or rotted.
Soil conservation practices	Practices that are mechanisms used to protect soil quality while managing for other resource goals and objectives. They can be administrative, preventive or corrective measures. They are identified during project planning and design.
Soil drainage	The rapidity and extent of the removal of water from the soil, in relation to additions especially by surface runoff and by flow through the soil to underground spaces.
Soil mass movement	See mass movement.
Soil productivity	The capacity of a soil, in its normal environment, to produce a specific plant or sequence of plants under a specific system of management.

Soil quality standards	Standards that are a combination of 1) "threshold" values for severity of soil property alteration, or significant change in soil properties conditions, and 2) areal extent of disturbance.
Soil Resource Inventory (SRI)	An inventory of the soil resource based on landform, vegetative characteristics, soil characteristics, and management potentials.
Somewhat poorly drained soil	Water in the soil is removed from the soil slowly enough to keep it wet for significant periods but not all of the time.
Special habitats	Structural elements of ecosystems. These may include, but are not limited to: snags, spawning gravels, fallen trees, aquatic reefs, caves, seeps, and springs.
Special Interest Areas	A designation for areas possessing unique or unusual scenic, historic, prehistoric, scientific, or other characteristics.
Special Use Authorization	A permit, term permit, temporary permit, lease, or easement that allows occupancy or use of, or rights and privileges on National Forest System lands.
Special Use Permit	Permits and granting of easements (excluding road permits and highway easements) authorizing the occupancy and use of land.
Specified Road	Those roads including related transportation facilities and appurtenances, listed in timber sale contracts (Table A1) for construction or reconstruction by the timber purchaser in accordance with locations and specifications provided by the Forest Service. Those Forest Development roads planned for recurrent land management uses and for which the timber sale contract specifies the location, standards, and specifications.
Speleothem	Any secondary mineral deposit or cave formation that is formed by the action of water. Examples are stalagmites, stalactites, flow stone, bacon rind drapery, helictites, soda straws, and crystal growths.
Split lines	The process of separating the direction of timber harvest yarding into opposite directions.
SRI	See Soil Resources Inventory.
Stabilization	The process of arresting the deterioration of a damaged cultural resource in order to prevent further damage from occurring. Stabilization may include reconstructing portions of the cultural resource.
Stand	A group of trees occupying a specific area and sufficiently uniform in composition, age arrangement, and condition as to be distinguishable from the trees in adjoining areas.
Standard	A course of action or level of attainment required by the forest plan to promote achievement of goals and objectives.
State Historic Preservation Officer (SHPO)	The official appointed or designated pursuant to Section 101(b)(1) of the National Historic Preservation Act of 1966, as amended, to administer the State Historic Preservation Program.

State selection	(from National Forest System lands) Application by Alaska Department of Natural Resources to the USDI Bureau of Land Management for conveyance of a portion of the 400,000 acre State entitlement from vacant and unappropriated National Forest System lands in Alaska, under authority of Section 6(a) of the Alaska Statehood Act of 1959 (Public Law 85-508, 72 Stat. 340). For lands to be conveyed, State selections must be approved by the USDA Forest Service, Regional Forester, Alaska Region under criteria of the Statehood Act. Until approved by the Regional Forester, the State application is not considered a valid selection. The State can select up to 25 percent in excess of its remaining entitlement.
Strata	The aggregation of areas with similar resource conditions into broad categories for analysis purposes. The term is most commonly used for categorizing forested areas.
Stratigraphic	Depositional units or layers of sediment distinguished by composition or appearance that are associated with archaeological and historic sites.
Stream class	<p>A means to categorize stream channels based on their fish production values. There are three stream classes on the Tongass National Forest. They are:</p> <p>Class I. Streams with anadromous (fish ascending from oceans to breed in freshwater) or adfluvial (fish ascending from freshwater lakes to breed in streams) lake and stream fish habitat. Also included is the habitat upstream from migration barriers known to be reasonable enhancement opportunities for anadromous fish and habitat with high value resident sport fish populations.</p> <p>Class II. Streams with resident fish populations and generally steep (often 6-15 percent) gradient (can also include streams from 0-5 percent gradient where no anadromous fish occur). These populations have limited sport fisheries values. These streams generally occur upstream of migration barriers or are steep gradient streams with other habitat features that preclude anadromous fish use.</p> <p>Class III. Streams with no fish populations but have potential water quality influence on the downstream aquatic habitat.</p>
Streamflow	The discharge of water from a watershed that occurs in a natural stream channel.
Stream order	First order streams are the smallest unbranched tributaries; second order streams are initiated by the point where two first order streams meet; third order streams are initiated by the point where two second order streams meet, and so on.
Structure	A term in ecology referring to the arrangement of plant communities or ecosystems across a landscape and how they are connected, and to variations in tree heights and diameters within a stand or between stands.
Subsistence	Section 803 of the Alaska National Interest Lands Conservation Act defines subsistence use as, "the customary and traditional uses by rural Alaska residents of wild renewable resources for direct, personal or family consumption as food, shelter, fuel, clothing, tools, or transportation; for the making and selling of handicraft articles out of nonedible byproducts of fish and wildlife resources taken for personal or family consumption; for barter, or sharing for personal or family consumption; and for customary trade."
Substrate	The size of rock in the bed (bottom) of rivers and streams.
Suitable forest land	Forest land for which technology is available that will ensure timber production without irreversible resource damage to soils, productivity, or watershed conditions, and for which there is reasonable assurance that such lands can be adequately restocked,

and for which there is management direction that indicated that timber production is an appropriate use of that area.

scheduled lands. Land suitable and scheduled for timber production and which are in the land base for the calculation of the allowable sale quantity and long-term sustained yield timber capacity.

unscheduled lands. Lands suitable but not scheduled for timber production and which are not in the land base for the calculation of the allowable sale quantity nor long-term sustained yield timber capacity.

Supplemental Funds	Funds or materials used to finance the additional cost of a road to a higher standard than is needed for a timber sale, and which cannot be legally paid for by purchaser credits.
Suppression	The act of extinguishing or confining a fire.
Surface rights	All rights in the surface of the land except oil, gas, and other mineral or subsurface rights.
Suspended sediment	The very fine soil particles which remain in suspension in water for a considerable period of time without contact with the stream or river channel bottom.
Sustained yield	The amount of renewable resources that can be produced continuously at a given intensity of management.
Swale	A slight, marshy depression in generally level land. A depression in glacial ground moraine.

T

Targets	Objectives assigned to the Forest by the Regional Plan.
Temporary facility	Any structure or other human-made improvement which can be readily and completely dismantled and removed from the site when the authorized use terminates.
Temporary roads	Low-level roads constructed for a single purpose and short-term use. Once use of the road has been completed, it is obliterated, and the land it occupied is returned to production.
Tentatively suitable Forest Land	Forest land that is producing or is capable of producing crops of industrial wood and: (a) has not been withdrawn by Congress, the Secretary of Agriculture or the Chief of the Forest Service; (b) existing technology and knowledge is available to ensure timber production without irreversible damage to soils productivity, or watershed conditions; (c) existing technology and knowledge, as reflected in current research and experience, provides reasonable assurance that it is possible to restock adequately within 5 years after final harvest; and (d) adequate information is available to project responses to timber management activities.
Terrestrial ecosystems	Plant communities that are not dependent on a perpetual source of water to grow.
Thinning	The practice of removing some of the trees in a stand so that the remaining trees will grow faster due to reduced competition for nutrients, water, and sunlight. Thinning

may also be done to change the characteristics of a stand for wildlife or other purposes. Thinning may be done at two different stages:
Precommercial. Removing trees that are too small to make a merchantable product to improve tree spacing and promote more rapid growth.
Commercial. Removing trees that have reached sufficient size to be manufactured into a product to improve tree spacing and promote more rapid growth.

Threatened Species	Any species which is likely to become an endangered species within the foreseeable future throughout all or a significant portion of its range and which has been designated in the Federal Register by the Secretary of the Interior as a threatened species.
Threshold	The point or level of activity beyond which an undesirable set of responses begins to take place within a given resource system.
Tiering	Elimination of repetitive discussions of the same issue by incorporating by reference the general discussion in an environmental impact statement of broader scope. For example, a project environmental assessment could be tiered to the Forest Plan EIS.
Timber	A general term for the major woody growth of vegetation in a forest area.
Timber classification	<p>Forested land is classified under each of the land management alternatives according to how it relates to the management of the timber resource. The following are definitions of timber classifications used for this purpose.</p> <p>Nonforest. Land that has never supported forests and land formerly forested where use for timber production is precluded by development or other uses.</p> <p>Forest. Land at least 10-percent stocked (based on crown cover) by forest trees of any size, or formerly having had such tree cover and not currently developed for nonforest use.</p> <p>Suitable. Land to be managed for timber production on a regulated basis.</p> <p>Unsuitable. Forest land withdrawn from timber utilization by statute or administrative regulation (for example, wilderness), or identified as inappropriate for timber production in the Forest planning process.</p> <p>Commercial forest. Forest land tentatively suitable for the production of continuous crops of timber and that has not been withdrawn.</p>
Timber dispersion	When a opening created from a final timber harvest is no longer considered an opening for the purpose of scheduling adjacent timber harvest. This is often expressed as the maximum amount of disturbance in a watershed at any given time.
Timber harvest schedule	The quantity of timber planned for sale and harvest, by time period, from the area of land covered by the Forest Plan.
Timberlands	Forest lands producing or capable of producing crops of industrial wood. Areas qualifying as timberland can produce more than 20 cubic feet per acre per year of industrial wood at culmination of mean annual increment.
Timber production	The purposeful growing, tending, harvesting, and regeneration of trees for industrial or consumer use.
Timber Stand Improvement (TSI)	All noncommercial intermediate cuttings and other treatments to improve composition, condition, and volume growth of a timber stand.

Timed Meander	A proven floristic survey method where the surveyor enters the field, records the time, and records all species, while moving through the unit in a meandering search path covering all habitat variations. If after a certain time no new species are found, the survey is considered complete.
Tongass Resource Use Cooperative Survey (TRUCS)	A study done to gather information on subsistence uses of the Forest.
Top filing	The filing of a future selection application by the State of Alaska, subject to valid existing rights, for lands which are not available for selection on the date of filing. If otherwise valid, these applications become an effective selection, without further action by the state, upon the date included lands become available for selection. Top filings for the State of Alaska are authorized by Section 906(e), ANILCA.
Total stream discharge	Total water outflow from stream or river.
Traffic Service Level (TSL)	<p>Describes a road's significant traffic characteristics and operating conditions. The levels reflect a number of factors, such as speed, travel time, traffic interruptions, freedom to maneuver, safety driver comfort, convenience, and operating costs. These factors, in turn, affect design elements such as number of lanes, turnout pacing, lane widths, type of driving surface, sight distances, design speed, clearance, horizontal and vertical alignment, curve widening, and turnarounds.</p> <p>TSL A. Reflects transportation efficiency and mobility with few interruptions to flow and a stable smooth driving surface.</p> <p>TSL B. Generally would have alignment more influenced by topography, more interruptions but still usually a stable smooth driving surface.</p> <p>TSL C. One could expect much more sinuous alignment to reduce construction costs with a surface that may not be stable under all traffic or weather conditions.</p> <p>TSL D. Generally constructed for a single purpose and traffic is discouraged for other purposes; surface and alignment is rough and irregular; very low speeds are anticipated to be able to safely negotiate the road.</p>
Transportation and Utility System (TUS)	<p>Significant corridors, with their associated sites used to accommodate public transportation and energy transmission needs.</p> <p>Avoidance Area. An area where the establishment and use of transportation or utility corridors and sites is not desirable given the land use designation emphasis. A search for "windows" should be exhausted before TUS facilities are considered in avoidance areas. When practical, these areas should be avoided through site-specific analysis during project-level planning. Avoidance areas often include Congressionally and administratively designated areas. Although special environmental and procedural considerations may be required for these areas, these special designations do not preclude consideration and use as a TUS. Avoidance areas are designated through the allocation of lands to management prescriptions specifically identified as TUS avoidance areas in their standards and guidelines.</p> <p>Exclusion Area. A large area (large enough to cause significant barriers) which legislatively precludes transportation and utility systems. Due to special authorities provided in Title XI, ANILCA, there will be no exclusion areas on the Tongass.</p> <p>Window. An area potentially available for the location of transportation or utility corridors and sites.</p>

Transportation/Utility corridor	A linear strip of land identified for the present location of transportation or utility rights-of-way within its boundaries (USDA Forest Service, Region 6 memo dated December 2, 1987 from Director of Lands and Minerals to Director of Planning).
Travel management	Providing for the safe, environmentally responsible, and customer responsive movement of vehicles and people to and through public lands (social attributes).
TRUCS	See Tongass Resource Use Cooperative Survey.
Trust	A right of property, real or personal, held by one party for the benefit of another (Black 1979).
TSI	See Timber Stand Improvement.
TSL	Traffic Service Level.
TTRA	Tongass Timber Reform Act of 1990.
Turbidity	An expression of the optical property that causes light to be scattered and absorbed rather than transmitted in straight lines through a water sample; turbidity in water is caused by the presence of suspended matter such as clay, silt, finely divided organic and inorganic matter, plankton, and other microscopic organisms.
TUS	See Transportation and Utility System.
Two-aged Management	A silvicultural method in which the majority of the trees in a harvest unit are cut in one entry, and the rest (about 10-20 percent of the unit) are left as residual trees, either singly or in patches. The residual trees remain unharvested to provide structural diversity and older-aged trees within the second-growth stand.
Type conversion	The act of converting a plant community from one vegetative type to another. In forestry, it is the act of changing the existing dominant tree species from one type to another.

U

Ultramafic soil	A soil that is very low in silica and rich in iron and magnesium.
Unconfined streams	Streams that, due to lack of stream incision, and effects of geomorphic landform characteristics and local geologic conditions, result in streams overflowing their banks, changing flows to other channels, and establishing new channels during flood conditions.
Understory vegetation	Grass, small trees, shrubs, and other plants found beneath the overstory (the trees comprising the forest).

Undertaking	In cultural resources, any project, activity, or program that can result in changes in the character or use of historic properties, if any such properties are located in the area of potential effects. The project, activity, or program must be under the direct or indirect jurisdiction of a Federal Agency or be licensed or assisted by a Federal agency. Undertakings include new and continuing projects, activities, or programs and any of their elements not previously considered under Section 106, National Historic Preservation Act of 1966, as amended.
Uneven-aged management	The application of actions needed to maintain high-forest cover, recurring regeneration of desirable species, and the orderly growth and development of trees through a range of diameter or age classes. Cutting methods that develop and maintain uneven-aged stands are single-tree and group selection.
Unsuitable lands	Forest land not managed for timber production because: 1) Congress, the Secretary, or the Chief has withdrawn it; 2) it is not producing or capable of producing industrial wood; 3) technology is not available to prevent irreversible damage to soils productivity, or watershed conditions; 4) there is no reasonable assurance, based on existing technology and knowledge, that it is possible to restock lands within 5 years after final harvest; 5) there is, at present, a lack of adequate information about responses to timber management activities; or 6) timber management is inconsistent with or not cost efficient in meeting the management requirements and multiple-use objectives specified in the Forest Plan.
Unsuppressed	A fire that remains unextinguished or unconfined. The spread has not been halted.
Upland	Not immediately adjacent to a stream.
Utility (Pulp) volume	Logs that do not meet minimum requirements for sawtimber but are suitable for the production of usable pulp chips.
Utilization standards	Standards guiding the use and removal of timber. They are measured in terms of diameter at breast height (DBH) and top of the tree inside the bark (top DIB) and the percentages of "soundness" of the wood.

V

V-Notches	A deeply incised valley along some waterways that would look like a "V" from a frontal view. These abrupt changes in terrain features are often used as harvest unit or yarding boundaries.
VAC	See Visual Absorption Capability.
Valid	Having legal strength or force, executed with proper formalities, incapable of being rightfully overthrown or set aside (Black 1979).
Valid existing rights	The rights afforded someone to explore and extract minerals from an area that has been withdrawn from mineral entry because they staked their claim before the area was withdrawn.
Valley	An elongated, relatively large, externally drained depression of the earth's surface that is primarily developed by stream erosion.

Valley bottom	A general term for the nearly level to gently sloping part of a valley. Also referred to as the valley floor.
Value Comparison Unit (VCU)	A distinct geographic area that generally encompasses a drainage basin containing one or more large stream systems. Boundaries usually follow easily recognizable watershed divides. These units were established to provide a common set of areas for which resource inventories could be conducted and resource value interpretations made.
VCU	See Value Comparison Unit.
Vegetation release	The freeing of vegetation (grass, forbs, brush, trees) by eliminating the competition for nutrients, water, and sunlight. Once competition for these items has been eliminated, subdued, or stagnated, vegetation will display vigor and growth.
Veneer log	A log considered suitable in size and quality for producing veneer which is a thin sheet of wood of uniform thickness.
Very poorly drained soils	Water is removed from the soil so slowly that the water table remains at or on the surface the greater part of the time. Soils of this drainage class usually occupy level or depressed sites and are frequently ponded.
Viable population	The number of individuals of a species required to ensure the long-term existence of the species in natural, self-sustaining populations adequately distributed throughout their region.
Viewshed	An expansive landscape or panoramic vista seen from a road, marine water way or specific viewpoint.
Visual Absorption Capability (VAC)	The capability of the landscape to visually absorb management activities. Landscapes are rated with high, moderate or low abilities to absorb management activities. These ratings reflect the degree of landscape variety in an area, viewing distance and topographic characteristics. As an example, steep, evenly sloped landscapes viewed in the foreground to middleground are typically given a low VAC rating.
Visual Quality Objective (VQO)	<p>A desired level of scenic quality and diversity of natural features based on physical and sociological characteristics of an area. Refers to the degree of acceptable alterations of the characteristic landscape.</p> <p>Inventory VQO. Derived through application of the USDA Visual Management System. Uses three elements to determine the inventory: Sensitivity levels, distance zones and landscape variety class. Provides a benchmark and illustrates the optimum objective based on current use patterns and sensitivity.</p> <p>Adopted VQO. The VQO to be achieved as a result of management direction identified in the approved forest plan. Adopted VQO's represent the visual resource objective for the Forest Land Management Plan period, normally 10 years. (FSH 2309.22, R-10 Landscape Management Handbook.)</p> <p>Preservation. Management activities are generally not allowed in this setting. The landscape is allowed to evolve naturally.</p> <p>Retention. Management activities are not evident to the casual Forest visitor.</p> <p>Partial Retention. Management activities may be evident, but are subordinate to the characteristic landscape.</p>

Modification. Management activities may dominate the characteristic landscape but will, at the same time, use naturally established form, line, color, and texture. It should appear as a natural occurrence when viewed as middleground (1/4 to 5 miles from viewer).

Maximum Modification. Management activities may dominate the characteristic landscape, but should appear as a natural occurrence when viewed as background.

VQO See Visual Quality Objective.

W

WAA See Wildlife Analysis Area.

Watershed The area that contributes water to a drainage or stream. Portion of the forest in which all surface water drains to a common point. Watersheds can range from a few tens of acres that drain a single small intermittent stream to many thousands of acres for a stream that drains hundreds of connected intermittent and perennial streams.
Third order watershed. A watershed where there are (generally) two major branches to the mainstream of the watershed. (Also see Stream order.)
Fourth order watershed. A watershed which contains at least two third order watersheds.

Watershed analysis A systematic procedure for characterizing and evaluating ecological processes within a watershed, for use in ecosystem management and project planning.

Water table The upper surface of the ground water or that level below which the soil is saturated with water.

Well distributed As used in the National Forest Management Act regulations, this term applies to populations of individual wildlife species that occur throughout their geographic range and have the ability to interact with one another across that range.

Well-drained soils Water is removed from the soil readily, but not rapidly.

Wetlands Areas that are inundated by surface or ground water with a frequency sufficient, under normal circumstances, to support a prevalence of vegetative or aquatic life that requires saturated or seasonally saturated soil conditions for growth and reproduction. Wetlands generally include muskegs, marshes, bogs, sloughs, potholes, river overflows, mud flats, wet meadows, seeps, and springs.

WFUD See Wildlife and Fish User Day.

Wild and Scenic Rivers Rivers or sections of rivers designated by congressional actions under the 1968 Wild and Scenic Rivers Act, as wild, scenic, or recreational by an act of the Legislature of the State or States through which they flow. Wild and scenic rivers may be classified and administered under one or more of the following categories:
Wild river areas. Rivers or sections of rivers that are free of impoundments and generally inaccessible except by trail, with watersheds or shorelines essentially primitive and waters unpolluted. These represent vestiges of primitive America.
Scenic river areas. Rivers or sections of rivers that are free of impoundments, with watersheds still largely primitive and shorelines largely undeveloped, but accessible in places by roads.

Recreational river areas. Rivers or sections of rivers that are readily accessible by road or railroad, that may have some development along their shorelines, and that may have undergone some impoundment or diversion in the past.

Wilderness	Areas designated by congressional action under the 1964 Wilderness Act or subsequent Acts. Wilderness is defined as undeveloped Federal land retaining its primeval character and influence without permanent improvements or human habitation. Wilderness areas are protected and managed to preserve their natural conditions, which generally appear to have been affected primarily by the forces of nature, with the imprint of human activity substantially unnoticeable; have outstanding opportunities for solitude or for a primitive and confined type of recreation; include at least 5,000 acres or are of sufficient size to make practical their preservation, enjoyment, and use in an unimpaired condition; and may contain features of scientific, educational, scenic, or historic value as well as ecologic and geologic interest. In Alaska, Wilderness has been designated by ANILCA and TTRA.
Wildfire	Any wildland fire not designated and managed as a prescribed fire within an approved prescription. All wildfires will be given an appropriate suppression action.
Wildlife Analysis Area	A division of land used by the Alaska Department of Fish and Game for wildlife analysis. (WAA)
Wildlife and Fish User Day (WFUD)	One Wildlife and Fish User Day (WFUD) consists of 12 hours of recreation viewing or utilizing fish or wildlife.
Wildlife habitat diversity	The distribution and abundance of different plant and animal communities and species within a specific area.
Windfirm	Trees not likely to be blown over by the wind. These are usually trees that have been exposed to the wind throughout their life and have developed a strong root system or trees that are protected from the wind by terrain features.
Windthrow	The act of trees being uprooted by the wind. In Southeast Alaska, Sitka spruce and hemlock trees are shallow rooted and susceptible to windthrow. There are generally three types of windthrow - endemic where individual trees are blown over; catastrophic where a major windstorm can destroy hundreds of acres; and management related, where the clearing of trees in an area make the adjacent standing trees vulnerable to windthrow.
Winter range	An area, usually at lower elevation, used by big game during the winter months; usually smaller and better-defined than summer ranges.
Withdrawal	The withholding of an area of Federal land from settlement, sale, location, or entry under some or all of the general land laws for the purpose of limiting activities under those laws in order to maintain other public values in the area.

Appendices

Appendix A

Timber Suitability Classification

APPENDIX A

TIMBER RESOURCE LAND SUITABILITY

INTRODUCTION

This appendix describes the process used to identify the lands of the Tongass National Forest which are suitable, available, and scheduled for timber production. This is accomplished in three steps: 1) the identification of lands which are legally and practicably capable of timber production, called *tentatively suitable* lands, 2) from the tentatively suitable lands, the selection of lands which are *suitable* for timber production based on all the multiple-use objectives for the Forest, and 3) from the suitable timber land base, the selection of lands which are economically viable for timber harvest, called the *suitable scheduled* lands.

TENTATIVELY SUITABLE LANDS

On October 23, 1987 a task force was established to determine the criteria for the tentatively suitable forest land in conjunction with the Revision of the Tongass National Forest Land Management Plan. The task force was comprised of a technical working group and consultant/reviewer group. Working group members were:

Bill Wilson	-	IDT Timber Planner - Chairman
Bob Gerdes	-	Stikine Area Forester
Dave Loggy	-	Ketchikan Area Soils Scientist
Jim Russell	-	Chatham Area Silviculturist
Jim Douglas	-	SAF Representative

Consultant/reviewer members were:

Paul Alaback	-	Forest Science Lab
Don Finney	-	Alaska Loggers Association
Bart Koehler	-	SEACC

The role of the task force was limited to identifying the biologic criteria and availability of forest lands to be considered as suitable for producing industrial wood products as described in the National Forest Management Act (NFMA) Regulations 36 CFR 219.14 (a)(1) through (4). The determination of lands actually suitable for timber production begins in the analysis of the management situation (AMS) and culminates with the Forest Plan. Suitable lands in the Forest Plan constitute the land base for determining the allowable sale quantity (ASQ) and all vegetation management practices associated with timber production. The AMS and each alternative in the Forest Plan are limited to no more than the acres identified as tentatively suitable.

National Forest Management Act Regulations 36 CFR 219.14 - Timber Resource Land Suitability were used. The task force was responsible for Section (a)(1) through (4).

36 CFR Part 219

NATIONAL FOREST SYSTEMS LAND AND RESOURCE MANAGEMENT PLANNING

36 CFR Part 219.14 - Timber Resource Land Suitability

During the forest planning process, lands which are not suited for timber production shall be identified in accordance with the criteria in paragraphs (a) through (d) of this section.

**Tentatively
Suitable
(Biologically
Capable)**

(a) During the analysis of the management situation, data on all National Forest System lands within the planning area shall be reviewed, and those lands within any one of the categories described in paragraphs (a)(1) through (4) of this section shall be identified as not suited for timber production

(1) The land is not forest land as defined in 219.3.

(2) Technology is not available to ensure timber production from the land without irreversible resource damage to soils productivity, or watershed conditions.

(3) There is not reasonable assurance that such lands can be adequately restocked as provided in 219.27(c)(3).

(4) The land has been withdrawn from timber production by an Act of Congress, the Secretary of Agriculture or the Chief of the Forest Service.

**Economically
Suitable**

(b) Forest lands other than those that have been identified as not suited for timber production in paragraph (a) of this section shall be further reviewed and assessed prior to formulation of alternatives to determine the costs and benefits for a range of management intensities for timber production. For the purpose of analysis, the planning area shall be stratified into categories of land with similar management costs and returns. The stratification shall consider appropriate factors that influence the costs and returns such as physical and biological conditions of the site and transportation requirements. This analysis shall identify the management intensity for timber production for each category of land which results in the largest excess of discounted benefits less discounted costs and shall compare the direct costs of growing and harvesting trees, including capital expenditures required for timber production, to the anticipated receipts to the government, in accordance with 219.12 and paragraphs (b)(1) through (b)(3) of this section.

(1) Direct benefits are expressed as expected gross receipts to the government. Such receipts shall be based upon expected stumpage prices and payments-in-kind from timber harvest considering future

supply and demand situation for timber and upon timber production goals of the regional guide.

(2) Direct costs include the anticipated investments, maintenance, operating, management, and planning costs attributable to timber production activities, including mitigation measures necessitated by the impacts of timber production.

(3) In addition to long-term yield, the financial analysis must consider costs and returns of managing the existing timber inventory.

**Suitable by
Management
Objectives**

(c) During formulation and evaluation of alternative as required in 219.12 (f) and (g), combinations of resource management prescriptions shall be defined to meet management objectives for the various multiple uses including outdoor recreation, timber, watershed, range, wildlife and fish, and wilderness. The formulation and evaluation of each alternative shall consider the costs and benefits of alternative management intensities for timber production as identified pursuant to paragraph (b) of this section in accordance with 219.12 (f). Lands shall be tentatively identified as not appropriate for timber production to meet objectives of the alternative being considered if -

(1) Based upon a consideration of multiple-use objectives for the alternative, the land is proposed for resource uses that preclude timber production, such as wilderness;

(2) Other management objectives for the alternative limit timber production activities to the point where management requirements set forth in 219.27 cannot be met; or

(3) The lands are not cost-efficient, over the planning horizon, in meeting forest objectives, which include timber production.

**Review of
Not Suited**

(d) Lands identified as not suited for timber production in paragraph (a) of this section and lands tentatively identified as not appropriate for timber production in paragraph (c) of this section shall be designated as not suited for timber production in the preferred alternative. Designation in the plan of lands not suited for timber production shall be reviewed at least every 10 years. Such lands may be reviewed and redesignated as suited for timber production due to changed conditions at any time, according to the criteria in paragraphs (a) and (c) of this section, and according to the procedures for amendment or revision of the forest plan in 219.10 (f) and (g).

NFMA Sections cited in Part 219.14 (a)(1) through (4) -

219.3 Definitions and Terminology

Forest Land: Land at least 10 percent occupied by forest trees of any size or formerly having had such tree cover and not currently developed for non-forest use. Lands developed for non-forest use include areas for crops,

improved pasture, residential, or administrative areas, improved roads of any width, and adjoining road clearing and powerline clearing of any width.

219.27 Management Requirements - (c) Silvicultural Practices

(3) When trees are cut to achieve timber production objectives, the cuttings shall be made in such a way as to assure that the technology and knowledge exists to adequately restock the lands within 5 years after final harvest. Research and experience shall be the basis for determining whether the harvest and regeneration practices planned can be expected to result in adequate restocking. Adequate restocking means that the cut area will contain the minimum number, size, distribution, and species composition of regeneration as specified in regional silvicultural guides for each forest type. Five years after final harvest means 5 years after clearcutting, 5 years after final overstory removal in shelterwood cutting, 5 years after the seed tree removal cut in seed tree cutting, or 5 years after selection cutting.

Forest Service Planning Handbook FSH 2409.13 contains criteria for identifying tentatively suitable and suitable forest lands in accordance with 36 CFR 219.14. The process for identifying suitable lands using these criteria is summarized in the following chart.

**PROCESS FOR IDENTIFICATION OF LANDS SUITABLE FOR TIMBER
PRODUCTION (FSH 2409.13-92-1)**

Is land forested?	NO	Unsuitable (nonforest)
YES	----->	
Is land capable of producing crops of industrial wood?	NO	Unsuitable (nonindustrial wood)
YES	----->	
Is irreversible damage likely to occur?	YES	Unsuitable (irreversible damage)
NO	----->	
Can area be restocked within 5 years?	NO	Unsuitable (restocked)
YES	----->	
Is adequate response information available?	NO	Unsuitable (no information)
YES	----->	
Is land withdrawn from timber production?	YES	Unsuitable (withdrawn)
NO	----->	
Then land is tentatively suitable for timber production -		
Is land selected in alternative for timber production?	NO	Not appropriate (unsuitable in preferred alternative and Forest Plan).
YES	----->	
Then land is suitable for timber production -		

Process 1.

Is Land Forested?

Forest Land. Land at least 10-percent occupied by forest trees or formerly having had such tree cover and not currently developed for nonforest use. Forest trees are defined as woody plants having a well-developed stem and usually more than 12 feet in height at maturity. Lands developed for nonforest use include areas for crops, improved pasture, residential or administrative areas, improved (constructed) roads of any width and adjoining road clearing, and powerline clearing of any width. The term occupancy, when used to define forest land, shall be measured by canopy cover of live forest trees at maturity. The minimum area for classification of forest land is 5 acre or greater, consistent with Regional mapping standards. Unimproved roads, trails, streams, and clearings in forest areas are classified as forest, if they are less than 120 feet in width.

Tentatively Suitable Criteria

1. Tongass National Forest lands meeting the definition will be classified as forested.

a. Vegetative Inventory - National Forest lands identified as having a forested Cover Type (CT) in the Forest Plan Geographic Information System (GIS) Data Base includes all existing forest types meeting the 10% crown cover and currently nonstocked forest land formerly having had 10% crown cover.

<i>Code</i>	<i>Description</i>
F	Forested

b. Soils Inventory - National Forest lands with soils inventoried as having forested plant association in the Forest Plan GIS Data Base will be compared to the vegetative inventory to insure all nonwilderness forested lands are identified. Forested lands in the Soil Mapping Unit (SMU) are identified in the Cover Type of the SMU look-up table (SMUT).

<i>Code</i>	<i>Descriptions</i>
F	Forested

c. Lands Inventory - National Forest lands currently developed for nonforest use, including administrative sites and powerline clearings, will be identified in the Forest Plan GIS Data Base and classified as

unsuitable. Forested encumbered National Forest lands satisfy the forested criteria until selections are conveyed to the State of Alaska or Native Corporations.

d. Roads Inventory - Existing specified roads and adjoining road clearings on National Forest lands will be identified in the Forest Plan GIS Data Base and classified as unsuitable. The existing road status (STATUS) is:

<i>Code</i>	<i>Description</i>
E	Existing

NOTE: All resource inventory information will not be available for existing Wilderness. As a minimum, the vegetative inventory will be used to identify forested lands within Wilderness.

Process 2.

Is Land Capable of Producing Crops of Industrial Wood?

Forest Land Capable of Producing Industrial Wood. Lands that are not capable of producing crops of industrial wood are by definition to be classified as unsuitable for timber production. Species of trees which are not currently utilized or not expected to be utilized within the next 10 years, constitute the primary criterion for assigning lands to this category. This does not preclude, however, the formulation of an alternative to display management opportunities, if a demand develops.

Tentatively Suitable Criteria

1. Tongass National Forest lands meeting the criteria of forested (Process 1), but are not capable of producing industrial wood products, will be classified as unsuitable.

a. Vegetative Inventory - Mature stands of nonindustrial forest types will be identified in the Forest Plan GIS Data Base and classified as unsuitable. Forest Type (FT) codes are:

<i>Codes</i>	<i>Description</i>
P	Black Cottonwood
L	Lodgepole Pine
A	Alder

NOTE: A review of the soils GIS inventory indicates that there are no SMUs which have occurrences of Plant Associations with 50% or greater of the noncommercial species listed above on the Tongass National Forest. The vegetation inventory will be used to identify unsuitable lands in both wilderness and nonwilderness.

Physically Suitable Forest Land. Forest lands physically suitable for timber production are lands where technology is available to ensure timber production, without irreversible resource damage to soil productivity or watershed conditions and lands where there is reasonable assurance that they can be adequately restocked within 5 years. The latest developments in technology that are documented in current research and experience are to be considered in these determinations. Economic efficiency is not a factor in the determination of physical suitability.

The next two steps (Process 3 and Process 4) are subparts of the Physically Suitable screen.

Process 3.

Is Irreversible Damage Likely to Occur?

Irreversible Damage. The first test of physically suitable forest land is for irreversible damage. This test shall be performed by an interdisciplinary team. It shall determine if activities involved in timber production can be carried out on forest land without irreversible resource damage to soil productivity or watershed conditions. As a minimum, activities considered should include access, harvesting, slash disposal, and regeneration. If these items can be accomplished with available technology and without impairment to the site or drainage, the land shall be considered tentatively suitable. Available technology is that technology that is in use or which current research and experience indicates is feasible to use. Current research and experience should indicate that the technology is feasible to use successfully for the site, species, and other factors involved. Current does not have to be within the Forest or Region.

Tentatively Suitable Criteria

1. Tongass National Forest lands meeting the criteria of forested (Process 1) and capable (Process 2), but cannot be managed for industrial wood products without irreversible resource damage, will be classified as unsuitable.

a. Soil Inventory - Soils identified as meeting criteria for irreversible resource damage will be identified in the Forest Plan GIS Data Base and classified as unsuitable.

(1) SMUs that are unsuitable will be identified in an interpretation lookup table for very high (code 4) mass movement probability rating.

(2) Those SMUs in the table having high (code 3) mass movement probability ratings will be identified as needing technology capable of supplying partial or full suspension over nearly the entire length of the yarding distance to ensure timber production without irreversible resource damage to soil productivity or watershed conditions. These lands satisfy the criteria for tentatively suitable, but will continue to be tracked to insure that alternatives include the appropriate logging system.

(3) SMUs with any occurrence of McGilvery soils will be still meet the criteria for tentatively suitable in this process, but will be identified as requiring harvest systems capable of at least partial suspension over nearly the entire length of the yarding distance.

Classes of McGilvery Soils

HOCL
MCG
MCGF
MCGC

NOTE: The soils inventory is not available for all existing Wilderness. As a minimum, the Digital Elevation Model (DEM) will be used to identify forested lands (from the vegetative inventory) with slopes 75% or greater. These lands will be classified as unsuitable.

Process 4.

Can Area be Restocked Within 5 years?

Restocking Within 5 years. The second test of physically suitable forest land (after irreversible damage discussed in Process 3) is whether there is reasonable assurance that the remaining forest lands can be adequately restocked within 5 years of final harvest, based on existing technology and knowledge. Current research and experience shall be the basis for determining whether the practice planned can be expected to be successful at the time final harvest is planned. If existing knowledge is inadequate to determine which practices will be successful on certain lands, but research is underway which should resolve this question prior to when final harvest is planned; then, the applicable lands may be included as tentatively suitable, but shall be maintained as a separate, noninterchangeable component of the allowable sale quantity. For the purpose of this test, final harvest is defined in 36 CFR 219.27(c)(3). Such assurance applies to normal conditions for the site and does not constitute a guarantee. Abnormal conditions, such as drought, disease, or other unplanned events, may preclude meeting this requirement. Forest lands failing to meet this test shall be classed as unsuitable for timber production.

Tentatively Suitable Criteria

1. Tongass National Forest lands meeting the criteria of forested (Process 1), capable (Process 2), and not causing irreversible resource damage (Process 3), but restocking cannot be assured within 5 years, will be classified as unsuitable.

a. Soils Inventory - Soils Mapping Units not restockable will be identified in the Forest Plan GIS Data Base and are classified as unsuitable. These include:

(1) SMUs with greater than 41% McGilvery Series.

(2) SMUs in the data base identified with the dominant plant associations as listed below can be restocked but require special technology to meet restocking within 5 years. These plant associations will satisfy the restocking criteria for tentatively suitable, but will be tracked to insure that alternatives include the cost of these special restocking requirements (planting and site preparation).

<i>Code</i>	<i>Description</i>
330	Spruce - Devils Club
335	Spruce - Devils Club/Salmon Berry
340	Spruce - Devils Club/Skunk Cabbage
350	Spruce - Alder
380	Spruce - Salmon Berry
800	Spruce - Black Cottonwood/Alder
810	Spruce - Black Cottonwood/Willow
830	Spruce - Cottonwood/Devils Club
840	Spruce - Cottonwood/Alder - Devils Club
850	Spruce - Cottonwood/Blueberry - Devils Club

NOTE: The soils inventory is not available for all existing Wilderness. The vegetation layer will be used to establish a correlation between soils and vegetation outside of wilderness to be applied within wilderness.

Process 5.

Is Adequate Response Information Available?

Inadequate Response Information. Forest land shall be classified as unsuitable for timber production, if there is not adequate information available, based on current research and experience, to project response to timber management practices. These lands shall be identified as needing further inventory, research, or information and shall not be considered as part of the tentatively suitable land base, until such time that adequate response data are available. Give special attention to lands classified as incapable of producing 20 cubic feet/acre/year if they formerly met this criterion and were included in the timber base. In those situations where significant acreages are involved, the lands shall be considered tentatively suitable for timber production. The yield projections for these lands shall be limited to regeneration harvest practices, where response data to intensive management practices is inadequate, during the development of management prescriptions.

Tentatively Suitable Criteria

1. Tongass National Forest lands meeting the criteria of forested (Process 1), capable (Process 2), not causing irreversible resource damage (Process 3), and restocking assured within 5 years (Process 4), but have inadequate response information, will be classified as unsuitable.

a. Vegetative Inventory - Low site forested lands that have never been managed for industrial wood products have no response information and will be identified in the Forest Plan GIS Data Base and classified as unsuitable. These include forested lands with Forest Productivity (FPROD) identified as:

<i>Code</i>	<i>Description</i>
A	Low Productivity due to Alder
G	Low Productivity due to Glacier Forest
H	Low Productivity due to High Elevation
M	Low Productivity due to Muskeg
R	Low Productivity due to Rock cover
S	Low Productivity due to Recurrent Slide Zone
T	Low Productivity due to Willow
L	Low Productivity due to Low Site Index

b. Soils Inventory - Soils with inadequate response information will be identified in the Forest Plan GIS Data Base and classified as unsuitable. These include:

(1) All Soil Mapping Units having site index of less than 40 (on a 50 year base).

(2) Soil Mapping Units which have never been logged and have no response information available.

<i>Code</i>	<i>Description</i>
305	Spruce - Myrica Gale/Sedge
315	Spruce - Willow
325	Spruce - Blueberry/Willow

NOTE: The soils inventory will not be available for all existing Wilderness. As a minimum, the vegetative inventory will be used to identify land with inadequate response information.

Process 6.

Is Land Withdrawn from Timber Production?

Forest Land Withdrawn From Timber Production. Lands designated by the Congress, the Secretary, or the Chief for purposes that preclude timber production are to be classified as unsuitable. The act, order, or decision must include a legal description of the designated land, or a reference to a map, pending boundary survey and description, and include an effective date. Congressionally designated wilderness study areas and roadless areas endorsed by the Administration for wilderness classification are also withdrawn from timber production. Examples are units of the National Wilderness Preservation System, Primitive Areas, Research Natural Areas, and areas withdrawn by the Tongass Timber Reform Act. No other RARE II lands shall be considered withdrawn unless an individual State wilderness act so designates. Lands not withdrawn shall be further considered for timber production suitability.

Management objectives for Experimental Forests shall be obtained from the Station Director. Where objectives preclude timber production, the areas shall be considered withdrawn.

Tentatively Suitable Criteria

1. Tongass National Forest lands meeting the criteria of forested (Process 1), capable (Process 2), not causing irreversible resource damage (Process 3), restocking assured within 5 years (Process 4), and having adequate response information (Process 5), but are withdrawn from timber management, will be classified as unsuitable.

a. Administrative Inventory - National Forest Wilderness and Monument Areas identified in the Forest Plan GIS Data Base. Forested land within these areas will be classified as unsuitable.

b. Boundaries Inventory - Existing Research Natural Areas, Enacted Municipal Watersheds, and Experimental Forests identified in the Forest Plan GIS Data Base are classified as withdrawn. These include:

*Research Natural Areas**Municipal Watersheds*

Cape Fanshaw
Dog Island
Limestone Inlet
Old Tom Creek
Pack Creek
Red River
Gambier Bay

Ketchikan
Petersburg
Sitka

Experimental Forests

Young Bay
Maybeso

c. Tongass Timber Reform Act:

- Lands within 100 feet of either side of all Class I streams, and Class II streams that flow directly into Class I streams
- Lands given a Congressional designation of "Land Use Designation II"
- Additional Wilderness

**Summary of
Tentatively
Suitable**

Tentatively Suitable Forest Lands. Tentatively suitable lands, identified in accordance with this process, is fixed input to the Forest planning model in the establishment and evaluation of benchmarks and alternatives, unless trade-offs, such as wilderness areas, are to be analyzed. Acres of tentatively suitable lands are shown in Table A-1.

SUITABLE LANDS

This section describes the process used to identify the suitable lands, or more precisely, the portion of tentatively suitable lands that are not appropriate for timber production. The criteria used for this process are contained in 36 CFR 219.14 (c) and (d).

Lands identified as appropriate for timber production are classified as *suitable* lands. The lands identified as not suitable for timber production are classified as *unsuitable*. The number of acres assigned to each of these categories is displayed in Table A-1 for each of the alternatives from the Revised Supplement.

Suitable lands are those lands identified from the tentatively suitable land base as appropriate for timber production. Tentatively suitable lands not

appropriate for timber production were identified (36 CFR 219.14(c)) using the following criteria:

- (1) *Multiple-use Objectives.* These lands are identified as not appropriate for timber production because of other multiple-use values, or the land is proposed for resource uses that preclude timber production. Land Use Designations that preclude timber production include Old-growth Habitat, Remote Recreation, Semi-remote Recreation, proposed Research Natural Areas, Special Interest Area, proposed Wild Rivers, and others. Beach fringe and estuarine areas may also be unavailable for timber production depending on the alternative.
- (2) *Management Requirements.* These lands are identified as not appropriate for timber production activities because its anticipated that the management requirements of 36 CFR 219.27 cannot be met. 36 CFR 219.27 includes direction for resource protection, vegetative manipulation, silvicultural practices, even-aged management, riparian areas, soil and water, and diversity. Most lands that would have met these criteria, such as: 1) the 100 feet on either side of class I streams and 100 feet on either side of those class II streams that flow directly into class I streams (as a result of the Tongass Timber Reform Act), and 2) lands with extreme mass movement hazard soils, were removed from timber harvest consideration in the analysis of tentatively suitable timber lands (36 CFR 219.14(a)).
- (3) *Cost Efficiency.* Section 102 of the Tongass Timber Reform Act directs that the Secretary of Agriculture need not consider economic factors in the identification of lands not suited for timber production. No lands were identified as unsuitable for cost efficiency reasons.

The classification of unsuitable lands will be reviewed at least every 10 years (36 CFR 219.14(d)). This review is part of a monitoring item (# 4. under Timber) contained in Chapter 6 of this Forest Plan. Land suitability may be adjusted at any time due to changed conditions; monitoring will assess the magnitude of any changes and could lead to amendments to the Plan.

Table A-1 displays the results of the tentatively suitable process (36 CFR 219.14(a)) and lists, for each alternative in the Revised Supplement, those lands identified as not appropriate for timber production in accordance with 36 CFR 219.14(c) and (d).

TABLE A-1

TIMBER RESOURCE LAND SUITABILITY (Thousands of Acres)

Classification	Alt. 1	Alt. 2	Alt. 3	Alt. 4	Alt. 5	Alt. 6	Alt. 7	Alt. 8	Alt. 9
1. Non-Forest land (includes water)	6,960	6,960	6,960	6,960	6,960	6,960	6,960	6,960	6,960
2. Forest land	9,978	9,978	9,978	9,978	9,978	9,978	9,978	9,978	9,978
3. Forest land not capable of producing crops of industrial wood.	2,416	2,416	2,416	2,416	2,416	2,416	2,416	2,416	2,416
4. Forest land physically unsuitable: irreversible damage likely to occur not restockable within 5 years	573 63	573 63	573 63	573 63	573 63	573 63	573 63	573 63	573 63
5. Forest land - inadequate information	431	431	431	431	431	431	431	431	431
6. Forest land withdrawn from timber production	4,174	4,174	4,174	4,174	4,174	4,174	4,174	4,174	4,174
7. Tentatively suitable forest land (item 2 minus items 3, 4, 5 and 6)	2,321	2,321	2,321	2,321	2,321	2,321	2,321	2,321	2,321
8. Forest land not appropriate for timber production									
Research Natural Areas	2	2	2	2	2	2	0	0	0
Remote Recreation	427	81	81	81	81	81	14	14	247
Old Growth	20	7	354	7	136	136	0	507	0
Semi-Remote Recreation	1,657	362	362	362	362	358	121	121	16
Scenic Viewsheds	0	65	52	66	62	62	0	0	28
Modified Landscapes	0	68	57	68	62	61	7	13	0
Beach Fringe and Scenic Viewshed ⁽¹⁾	6	121	129	127	118	118	103	245	69
Wild, Scenic or Recreation Rivers	82	30	30	30	30	30	0	0	0
Special Areas	24	29	29	29	29	32	1	1	0
LUD III -Special	0	0	0	0	0	0	0	0	53
Total:	2,248	765	1,096	772	882	880	246	901	413
9. Unsuitable forest land (items 3, 4, 5, 6, and 8)	9,905	8,422	8,753	8,429	8,539	8,537	7,903	8,558	8,070
10. Total suitable forest land (item 2 minus item 9)	73	1,526	1,225	1,549	1,439	1,441	2,075	1,420	1,908
11. Total national forest land (items 1 and 2)	16,938	16,938	16,938	16,938	16,938	16,938	16,938	16,938	16,938

⁽¹⁾ Beach fringe and scenic viewshed with the timber emphasis LUD

Appendix B

Information Needs

APPENDIX B

INFORMATION NEEDS

I. INTRODUCTION

This appendix identifies priority research important for forest plan development and lists additional data and information needs that will help to assure a scientifically credible, legally defensible, and resource sustainable Tongass National Forest Land and Resource Management Plan. Resolution of these priority research items prior to completion of the next revision of the forest plan will substantially strengthen the scientific information base needed to support environmentally and socially responsive alternative development and associated management prescriptions. An important element of these priority research items and associated information needs is an "adaptive management" feed-back loop to evaluate current plan directives, design monitoring programs to measure effects, and adjust future management activities to better address economic, social, and environmental concerns on the Tongass National Forest. As a part of this process, statistically sound sampling design and analysis techniques need to be developed to assure reliability of monitored data and interpretations. This additional research component will be essential to maintaining the scientific creditability of the plan. The Pacific Northwest Research Station scientists assigned to the planning team are an appropriate group to spearhead this effort.

The appendix also recognizes information gaps important for improved implementation of the plan at the Area and project levels. Many of the identified and listed data and inventory items needed to further improve the information base overlap with the planned and ongoing validation and effectiveness monitoring specified in the Monitoring and Evaluation Plan (see Chapter 6 of the Tongass Land Management Plan). Funding for some items are included in Forest or Regional budgets. Additional funding will be resource specific, and will vary depending on the resource emphasis and needs in any given year.

II. PRIORITY RESEARCH NEEDS

With the assistance of the Alaska Region and Pacific Northwest Research Station economists and scientists attached to the planning team, the scientific soundness of procedures, data, and assumptions currently being used to develop the plan have been assessed and eleven major gaps in knowledge identified. Each of the identified knowledge gaps can be filled within a three- to five-year period through an accelerated research program carried on by research scientists on the team and through cooperative research within and outside of the Forest Service.

These major knowledge gaps with objectives, estimated costs, and duration are listed in order of priority:

1. TIMBER PRODUCTIVITY AND RESPONSE TO HARVEST OF FORESTED WETLANDS IN SOUTHEAST ALASKA

Objectives: a) Examine the response of forested wetlands following timber harvest on Kaikli, Karheen, Kitkun, and Maybeso Series soils and a Lithic Cryosaprist soil; b) document the effects of timber harvest on stocking (tree numbers, species, distribution) and growth response (timber volume).

Estimated cost: \$270,000.00

Duration: 3 years

2. THE RELATIONSHIP BETWEEN SOCIOECONOMIC CONDITIONS IN RURAL COMMUNITIES AND RESOURCE ALLOCATIONS ON THE TONGASS NATIONAL FOREST

Objectives: a) Develop baseline data to better identify the social and economic conditions within southeast Alaska communities. These conditions will be comprised of both perceived needs and desires of local residents. Data will include basic social and economic trends; b) determine linkages between resource allocations and social and economic conditions in southeast Alaska communities on the Tongass National Forest; and c) determine effects of National Forest planning decisions (TLMP) on these community-level needs and desires, focusing on changes related to plan implementation.

Estimated cost: \$250,000.00

Duration: 5 years

3. SUBSISTENCE RESOURCE PATTERNS IN SOUTHEAST ALASKA

Objectives: a) Update community traditional resource use patterns survey (TRUCS) through a series of community self-assessment surveys integrating standard scientific methodologies and traditional environmental knowledge; b) Monitor ongoing subsistence needs and uses through available data [e.g. Alaska Department of Fish and Game (DF&G) surveys] and the process outlined in a) above.

Estimated cost: \$250,000.00

Duration: 3 years

4. INTERACTIONS BETWEEN THE AQUATIC HABITAT AND THE PERTURBATIONS IN THE RIPARIAN ZONE AND THE RESPONSE OF ANADROMOUS AND RESIDENT SALMONIDS

Objectives: a) Systematically evaluate existing habitat and its relationship to salmonid populations in old-growth (un-managed watersheds) and managed watersheds (logged watersheds); b) evaluate interactions between aquatic habitat, salmonid productivity, and geomorphic processes in stream channels and in watersheds; c) evaluate the effects of land management activities on geomorphic processes in high gradient channels and on downstream aquatic habitat.

Estimated cost: \$400,000.00

Duration: 5 years

5. GEOGRAPHIC AND HABITAT DISTRIBUTION OF ISLAND ENDEMIC MAMMALS ON THE TONGASS NATIONAL FOREST

Objectives: a) For several recognized mammalian taxa with limited historical ranges, continue to document geographic extent and habitat distribution within and across islands and the mainland portion of the Tongass National Forest; b) for islands and portions of the mainland that already have experienced anthropogenic disturbance, determine population levels and associated distributional responses of corresponding mammalian endemics to disturbance.

Estimated total cost: \$485,000.00

Duration: 5 years

6. FUTURE TIMBER PRODUCTIVITY OF YOUNG-GROWTH STANDS ON THE TONGASS NATIONAL FOREST

Objectives: a) Conduct baseline studies on the future timber productivity of young-growth stands including distribution of site indexes, thinning shortfall, modeling (SEAPROG) routines, stem quality, intermediate treatments, harvesting standards, and alternative harvest systems; b) evaluate these factors in terms of future timber production projections on the Tongass National Forest; and c) evaluate the influence of these factors on restoration and enhancement of deer and other wildlife habitat.

Estimated cost: \$250,000.00

Duration: 3 years

7. ALTERNATIVES TO CLEARCUT TIMBER HARVEST ON THE TONGASS NATIONAL FOREST

Objectives: a) Conduct baseline studies on the effects of alternative silvicultural and logging and regeneration systems (non-clearcutting) on the ecology of late-successional stands on commercial forest lands in southeast Alaska; b) evaluate the effectiveness, operability, costs, and ability to meet management needs and social desires of these alternatives; and c) determine the influence alternative silvicultural systems on restoration and enhancement of deer and other wildlife habitat..

Estimated cost: \$300,000.00

Duration: 5 years

8. CONTEMPORARY ASSESSMENT OF ALASKAN COMPETITIVENESS IN GLOBAL FOREST PRODUCTS MARKETS

Objectives: a) In cooperation with research scientists, consultants, and industry analysts, compile and present contemporary information on Alaskan competitiveness in global forest products markets; b) present the results of this effort at a 1-day conference to be held in southeast Alaska during FY 1996. The conference will be open to the public.

Estimated cost: \$54,875.00

Duration: 12 months

9. ALASKA TIMBER PRICES AND MARKET ARBITRAGE IN THE PACIFIC NORTHWEST

Objectives: a) Examine the relationship between timber prices in Alaska (sold price, Tongass NF) and timber prices in the Pacific Northwest; b) describe factors common to both markets, and factors unique to each market; c) review statistical models that forecast the price of timber sold in Alaska (Tongass NF); d) based on this review, revise existing models, or develop new models that can forecast Alaska prices as a function of explanatory factors for which forecast values are available.

Estimated cost: \$10,875.00

Duration: 6 months

10. PRICES AND COSTS IN ALASKA TIMBER PRODUCTION AND PRODUCT SUPPLY

Objectives: a) Compile data and assess patterns and trends in key factors that determine competitiveness in forest products industries; compare data for Alaska to that for the Pacific Northwest, Canada, and major overseas competitors; b) conduct a preliminary analysis to estimate export supply relationships for Alaska, to determine the change in quantity exported in response to changes in export and domestic prices, costs, exchange rates, and other factors; c) review the data

from the Tongass NF on logging costs and timber availability; if possible, develop a preliminary method to incorporate these data in projections of demand for Tongass NF timber.

Estimated cost: \$40,750.00

Duration: 12 months

11. LUMBER RECOVERY OF SECOND GROWTH TIMBER FROM SOUTHEAST ALASKA

Objectives: a) Conduct a baseline lumber recovery study on second-growth western hemlock and Sitka spruce from southeast Alaska. This will provide estimates of the timber volume, lumber volume by grade, and lumber value recovery by diameter class and species; b) evaluate the characteristics of second-growth timber (wood density, juvenile wood, etc.) for their significance in the product potential of trees from southeast Alaska.

Estimated cost: \$41,670.00

Duration: 12 months

III. ADDITIONAL INFORMATION NEEDS

The additional information needs listed in this section define a number of knowledge gaps identified by resource specialists around the Region. Filling these information gaps, while not essential to completion of this revision, will considerably improve the data base on which subsequent plans are founded and improve the accuracy, reliability, and creditability of Area and project level direction and decisions related to specific issues. These knowledge gaps include:

A. HERITAGE RESOURCES

1. Document all discovered sites and maintain a current automated database in conjunction with Alaska Heritage Resource Surveys (AHRS).
2. Develop a comprehensive compilation of known cultural resources information in overview form which provides a description, status and management data for decisions.
3. Land Use:
 - a) Develop correlations between landform class and cultural site type and determine whether this relationship changes with time;
 - b) Develop a predictable, village-based spatial pattern of use that can be used to model communities.
4. Early Peopling of North America:
 - a) Determine if the southward migration of coastally adapted people was responsible, in any part, for the first human occupation of the Americas;
 - b) Determine if archaeological sites representing human occupation prior to 9,500 BP existed in southeast Alaska;
 - c) Determine if early, coastally adapted hunter/gatherer groups ventured inland in search of terrestrial resources;
 - d) Determine if the extensive littoral and solution cave systems of southeast Alaska were utilized for shelter and other cultural purposes during the late Pleistocene and early Holocene.
5. Paleoenvironmental Reconstruction:
 - a) Identify the location of the shoreline at different points in the past (e.g. 17,000 BP, 14,000 BP, 10,000 BP, 8,000 BP, 6,000 BP, 5,000 BP);

- b) Define the rate, and variations in rate, of sea level change during the late Pleistocene and Holocene;
 - c) Determine how the forest plant community composition changed through time (17,000 BP - present);
 - d) Determine how wildlife populations changed with time and what faunal resources were available to human populations during different Holocene periods;
 - e) Determine when and where anadromous fish runs were first established;
 - f) Determine what fish species (and corresponding relative abundance) are represented in occupational middens. Discover if species representation varies with time;
 - g) Determine how habitats change through time in southeast Alaska; For example: (1) landscape alteration by beavers; (2) in filling of bays and changing shellfish habitat.
6. Development of Complex Societies:
- a) Determine how complex societies develop in response to the increased abundance, reliability, and predictability of subsistence resources which accompanied stabilization of sea level ca 5,000 BP;
 - b) Define how the development of moieties, clans, and other social divisions can be recognized in the archaeological assemblage of the region. Determine if the evolution of these societal concepts can be traced through controlled excavation and structural analysis of a carefully chosen sample of sites;
 - c) Determine if contrasts in site structure, reflecting a change from egalitarian gatherer/hunter/fisher to tribal society, are recognizable in the archaeological record;
 - d) Determine if burial styles vary through time and if styles and accompanying grave goods reflect a developing social hierarchy.
7. Historical Subsistence:
- a) Define which ecosystems were exploited at different times in the past (i.e., plant and animal remains in sites);
 - b) Define the change in the subsistence resource base through time (earliest occupation through present);
 - c) Determine if there is an archaeologically recognizable change in social structure (cultural complexity) which correlates with the change in resource base;
 - d) Determine if changes in food processing and storage strategies are reflected in archaeological features;
 - e) Determine the proportions of shell, fish, bird, sea mammal, and terrestrial mammals represented in middens;
 - f) Determine at what seasons sites were occupied.
8. Settlement Patterns:
- a) Determine what site types (villages, fish camps, quarries, mines, fish traps, burials/cemeteries) existed for different periods in time (Paleomarine through historic);
 - b) Determine how human population density of various islands has changed through time;
 - c) Determine if village demographic and social structure changed through time and from place to place reflecting cultural and environmental diversity;
 - d) Determine how internal house layout varies through time and from place to place and if this reflects cultural complexity, differences between culture groups, or adaptation to environmental variables.
9. Rock Art:
- a) Determine if there are design similarities between southeast Alaska rock art and other culture areas of Alaska and the northwest coast;

- b) Determine if Haida and Tsimshian rock art styles can be distinguished;
- c) Determine if rock art styles and design motifs vary through time;
- d) Determine if pictographs and petroglyphs tend to be associated with other site types.

- 10. Develop baseline information on cultures and behavioral traditions.
- 11. Establish baseline information on development of languages.
- 12. Initiate archival studies (in conjunction with historic thematic overviews).

B. SPECIAL AREAS

- 1. Compile a Forest-wide inventory of potential Special Interest Areas prior to the next Forest Plan Revision.

C. RESEARCH NATURAL AREAS

- 1. Identify plant and animal communities and features still needing representation in Research Natural Areas.

D. WILDERNESS

- 1. Develop information on direct effects of human activity on wilderness ecosystems, including the effect of wildlife viewing activities on wildlife use and behavior.
- 2. Continue and expand ongoing ecological studies, such as lichen research, migratory bird use, and brown bear population dynamics.
- 3. Study effects of frequent aircraft over-flights on primitive recreation settings.
- 4. Develop information on the amount and location of recreation, subsistence, and other uses in wilderness.
- 5. Develop information on customer satisfaction (see also Recreation Information Needs).
- 6. Identify indicators and establish Limits of Acceptable Change (LAC) for designated Wilderness areas. (See also Wilderness in the Monitoring Plan).

E. RIVERS

- 1. Develop wild, scenic, and recreation river information needs as rivers are designated by Congress, and display in the river management plan.

F. RECREATION

- 1. Further develop and apply methods for determining rates of recreation use stratified by activity and for specific locations on the forest.
- 2. Assess customer satisfaction, and those attributes which contribute to customer satisfaction, of both resident and non-resident recreationists.
- 3. Evaluate the long-range demand (as assessed in the Plan) for recreation activities, opportunities, and setting preferences.

4. Update and refine the Recreation Places inventory and database.
5. Identify capacities, both physical and social, for Recreation Places consistent with management objectives for the Land Use Designation and Recreational Opportunity Spectrum (ROS) class.
6. Update information on benefits realized by recreationists, and the values of recreation to local and regional economies.
7. Periodically update the Southeast Alaska Pleasure Visitor Research Program. Cooperate with the State and other groups or agencies on conducting recreation or tourism studies.
8. Assess the importance of the tourism, outfitting, and guiding industries, such as numbers of clients, activities, trends, economic values, and relationship to resident recreationists in terms of competition and displacement.
9. Develop information about the effects of landscape modification and forest management activities on residents and tourists, including on the cruise ship and flightseeing industries.
10. Identify the value placed on resources of Southeast Alaska by those who may never visit.
11. Determine differential demand for recreational settings by community.
12. Evaluate the new scenery management system that was developed to initiate new inventories or inventory refinements.
13. Identify and evaluate possible locations for resort lodges in southeast Alaska.

G. FISH

1. Continue to maintain and update channel type and stream class inventories.
2. Continue to inventory aquatic habitats for fish improvement opportunities.
3. Determine success, in terms of habitat capability and numbers of fish, of fish improvement projects. (This item may be entirely covered in the monitoring plan.)
4. Develop a model using channel types to indicate potential locations for stream improvement.
5. Develop a lake classification system which complements the channel type inventory.
6. Collect information to validate or change habitat management standards and guidelines for lakes and estuaries. Information which might be needed includes: use of, and interactions between, coho, sockeye and cutthroat trout; cumulative effects from upstream influences; and, nutrient cycling resulting from salmon spawning.
7. The Alaska Cooperative Working Group on Forestry/Fisheries Research has developed recommended research priorities for 1992 (Alaska Working Group on Cooperative Forestry/Fisheries Research, Information Document 91-02, 1991). Many of these apply directly to information and research needs for the Tongass National Forest. Recommended priority research topics are:
 - a) Downstream effects of forest management activities including road construction, streams crossings, and riparian vegetation removal on water quality, stream flow, and fish habitat;

- b) Effectiveness of restoration efforts in increasing habitat and fish production;
 - c) Importance of various riparian functions to fish and wildlife in southeast Alaska;
 - d) Buffer strip design to minimize blowdown;
 - e) Develop appropriate techniques and parameters for rapid bio-assessment (such as indicator species) for monitoring cumulative effects.
8. Better understand the interaction and effect of introduced fish on resident fish, especially above major barriers where there may be unique populations of cutthroat trout or Dolly Varden char, to better predict the potential impacts of fish improvement projects.
 9. Learn more about the genetics of wild stocks of fish which our management activities may affect, to know whether stocks have unique attributes.
 10. Learn why, among the islands of southeast Alaska, only Admiralty Island (King Salmon River & Wheeler Creek) has endemic stocks of chinook (king) salmon.
 11. Acquire information on the biological, geological, and hydrological functions and processes occurring at the watershed scale which define the natural range of variation of fish habitat conditions.
 12. Acquire information on the efficacy of watershed restoration in increasing fish habitat and production.
 13. Determine if there is a relationship between harvest practices in watersheds and the rate of lateral migration of distributary streams in estuaries.
 14. Using aerial photo data, determine whether there exists a correlation between historic harvest activity and significant changes in distributary channel distribution.

H. SUBSISTENCE

1. Evaluate changes in subsistence use patterns and activities in cooperation with appropriate State and Federal agencies. (This item may be entirely covered in the monitoring plan.)

I. THREATENED, ENDANGERED, AND SENSITIVE SPECIES

1. Continue to expand the knowledge base on the distribution, life-history, genetics, habitat requirements, populations, and population trends of the threatened, endangered, and sensitive species, as well as candidate species. Priority for obtaining this information is as follows:
 - a) Endemic terrestrial species considered most sensitive to forest management activities;
 - b) Other terrestrial species most sensitive to forest management activities;
 - c) Fresh water aquatic species considered most sensitive to forest management activities (including anadromous fish species);
 - d) Marine species which utilize upland forest habitats for a portion of their habitat needs;
 - e) Other marine species affected primarily by activities in the marine environment.
 The threatened and endangered species information gathering will use National Marine Fisheries Service and U.S. Fish and Wildlife Service Recovery Plans as guidance, as they are developed.

2. Evaluate levels of lead in habitat areas, and effects on trumpeter swan populations.

I. WILDLIFE

1. Work towards a Forest-wide habitat inventory program to accomplish the following objectives:
 - a) Obtain and establish "baseline" habitat conditions in important habitat areas;
 - b) Provide documentation of natural and/or modified habitat conditions;
 - c) Identify opportunities for management actions which will help maintain or improve habitats;
 - d) Identify corridor requirements for mobility; and,
 - e) Develop a better understanding of wildlife viability on the Tongass.

Important habitats are: marine mammal haul outs, old-growth conifer habitats, Regional sensitive species habitats, marine bird rookeries and colonies, important seasonal habitats and concentration areas for the Management Indicator Species, and moose habitats. Coordinate the inventory work with other appropriate agencies and institutions.
2. Inventory vegetative conditions in moose habitat areas to help identify short and long-term changes in habitat conditions; identify the relationship of these habitat changes to moose population trends; assess the effects of various management activities in changing habitat conditions and moose populations. (May be in conjunction with item #1).
3. Identify opportunities for management actions which will help maintain or improve habitats for:
 - a) Important waterfowl;
 - b) Marine mammals (e.g. haulouts);
 - c) Introduced elk;
 - d) Marine bird rookeries and colonies;
 - e) Important seasonal habitats for Management Indicator Species.
4. Cooperate with other agencies and institutions to inventory the geographic distribution of small mammals, birds, and herpetofauna throughout the Forest (to increase our understanding of the island biogeography of Southeast Alaska).
5. Obtain information on snow-pack conditions, Forest-wide, within second-growth and old-growth timber stands. The objectives of this are:
 - a) To gain a better understanding of the influence of stand age and canopy closure on snow interception; and,
 - b) To assess snow accumulation on winter ranges to obtain a Forest-wide index of winter conditions.
6. Continue to assess the second-growth management program and methods to enhance second-growth habitat conditions for wildlife.
7. Determine effectiveness of wildlife enhancement projects, in terms of habitat capability and populations or population trends.
8. Continue to obtain information on the distribution, life history, genetics, habitat requirements, populations, and population trends of hawks, owls, and murrelets, with special emphasis on those species associated with old-growth forests. Develop protocol and inventory standards.
9. Continue to obtain information on the effectiveness of old growth stands of various sizes to provide for wildlife habitat. Questions to ask include:

- a) What species are associated with various stand sizes?
 - b) How do you measure and assess the effects of fragmentation?
 - c) What is the function and value of edge between old growth stands and younger successional stages?
10. Obtain information on whether individual trees, snags, or clumps of trees retained within clearcuts provide useful wildlife habitat, and for what period of time. Assess the % of clumps that blow over.
 11. Determine whether wintering bird and breeding bird populations vary over the long-term.
 12. Determine whether roads and the human use of roads affect old-growth habitat ecosystems and the usefulness of old-growth blocks to dependent wildlife.
 13. Replicate southeast Alaska murrelet sea survey.
 14. Determine current status, habitat distribution and habitat needs for the spotted frog.
 15. Determine upland habitat use by marbled murrelets.
 16. Expand baseline information on neotropical migratory bird species habitat distribution and relative abundance.
 17. Continue and expand wolf research to include effects of forest management on deer populations through proximate influences on forage quality and availability and ultimate effects on deer demography and population dynamics.
 18. Intensify efforts to determine goshawk habitat relationships with emphasis on determining habitat needs of key prey species.
 19. Develop and expand waterfowl research to:
 - a) Establish baseline populations for Vancouver Canada Goose and trumpeter swans wintering in southeast Alaska;
 - b) Establish baseline population for sea ducks and other waterbirds wintering and breeding in southeast Alaska;
 - c) Identify, locate, and map in a GIS significant molting areas of Vancouver Canada geese;
 - d) Determine critical food resources for wintering sea ducks and identify potential significant problems;
 - e) Determine critical food resources for wintering, breeding, and molting Vancouver Canada geese and identify potential significant problems;
 - f) Determine seasonal habitat distribution and critical food resources for harlequin ducks and identify any potential significant problems;
 - g) Determine habitat distribution and relative abundance and habitat and food requirements of migrating (spring and fall) snow geese, swans (trumpeter and tundra), and pacific brants and identify any potential significant problems;
 - h) Determine habitat distribution and relative abundance and habitat and food requirements for migrating sandhill cranes and identify any potential significant problems.

J. OLD-GROWTH FORESTS

1. Develop a Forest-wide vegetative inventory which allows accurate quantification and mapping of old-growth forest types, based on the 1991 Regional old-growth definitions. (See also Wildlife #2).

2. Document the amount of blowdown, other natural events, and other habitat disturbing activities within old-growth forests.
3. Continue to examine the temporal dynamics of natural disturbances, particularly blowdowns, in southeast Alaska.
4. Prepare a handbook that focuses on considerations of wind damage in managed forest landscapes in southeast Alaska.

K. TIMBER

1. Conduct an extensive timber inventory covering the entire Forest every 10 to 15 years to reflect the timber stand conditions at the time of each forest plan revision.
2. Complete inventories of forested plant associations.
3. Maintain existing timber stand inventories.
4. Assess areas that have received pre-commercial thinning or release and weeding treatments to insure management objectives have been met.
5. Design and evaluate methods to provide for windfirm timber harvest areas, especially in the vicinity of riparian areas. Determine whether feathering of clearcut edges increases the wind-firmness of the uncut stand.

L. AIR

1. Determine air quality conditions on Tongass National Forest lands (Consult FSM 2580).
2. Assess and document the potential effects, if any, of air pollution on forest resources.
3. Assess use of lichens as indicators of forest health and air quality conditions.
4. Establish the role and contribution of lichens to the fixed nitrogen supply available for nutrient cycling in forest ecosystems.
5. Develop seasonal surface and aloft airflow (wind) maps.
6. In order to help understand global warming, basic research is needed to better understand the productivity potential (in the sense of carbon utilization) of the full range of temperate rain forest sites, and to better predict what impact land-use practices may have on atmospheric carbon.

M. RIPARIAN

1. Continue on-the-ground inventories of riparian areas on which to base management actions.
2. Determine methods to maintain or enhance riparian associated resources, including intensively developed areas.

N. SOIL AND WATER

1. Conduct a systematic review of existing soil and water related data available for the Forest.
2. Continue to obtain soil and water baseline data to assess land-disturbing activities on soils (e.g. productivity, erosion), water quality and quantity, and sediment yield. (Note: This is also necessary for soil and water monitoring, as described in the Monitoring Plan.)
3. Conduct Watershed Condition Surveys to determine improvement needs as part of the development of the watershed improvement plan.
4. Determine whether native or non-native seed mixtures are more useful for erosion control and for wildlife forage plantings. Determine if non-native seed mixtures invade and threaten any native species or the function of natural ecosystems.
5. Develop and validate cumulative watershed effects models.
6. Develop a scientifically based, cost effective, issue driven watershed analysis protocol. This protocol should be designed to provide methods and procedures for linking watershed analyses with broader level landscape analyses to provide for effective integrated management at multiple scales.
7. Determine appropriate or allowable development and forest uses in municipal watersheds.

O. MINERALS, GEOLOGY, KARST AND CAVES

1. Maintain the U.S. Bureau of Mines mineral resource inventory; create a GIS layer, in cooperation with the U.S. Geological Survey, of un-discovered mineral potential areas.
2. Develop and maintain a Geologic Resource Inventory. Inventories may include mineral material sources, unique geology or paleontology sites, geological hazards, caves, and groundwater resources.
3. Determine the relationship between karst development and forest regeneration rates and soil loss within harvested lands.

P. TRANSPORTATION

1. Maintain an inventory of all Forest development transportation facilities including roads, bridges, and major culverts, log transfer facilities, and airfields.

Q. FIRE

1. Evaluate changes in vegetative/fuel component(s) and site productivity as a result of the presence of prescribed fire versus areas with prescribed fire absent.
2. Evaluate changes in vegetative/fuels component(s) and site productivity as a result of the non-treatment of activity generated fuels.
3. Evaluate the effects of prescribed fire as it relates to such areas as intensity, duration, scorch height, etc.

R. FOREST HEALTH

1. Evaluate incidence and impact of insects and diseases in even-aged young-growth stands.
2. Determine the influence that selection cutting and the retention of wildlife trees will have on the presence, spread, and impact of hemlock dwarf mistletoe.
3. Determine the abiotic factors that cause or contribute to yellow-cedar decline.
4. Identify and resolve problems related to the natural regeneration of yellow-cedar.
5. Evaluate the feasibility of salvaging dead yellow-cedar across the 400,000 acres where cedar decline is known to occur. Determine the volume of salvageable timber.
6. Determine the impact of wood decay fungi on residual trees that are wounded during partial cuts or commercial thinnings.
7. Evaluate bark beetle activity in slash from partial cuts and commercial thinnings.
8. Determine impact due to porcupine damage in managed stands including tree death, bole deformity, growth loss and introduction of wood decay fungi.

S. SOCIAL AND ECONOMIC

1. Look for new and different ways the Forest can contribute to local economic diversity.
2. Study the potential influence on forest management and direction, of the incorporation of value-added timber industries into southeast Alaska

T. FACILITIES

1. Determine the type and location of facilities required to efficiently provide administrative support for Forest management activities.

Appendix C

Best Management Practices

APPENDIX C

BEST MANAGEMENT PRACTICES

The Clean Water Act of 1972 (Public Law 92-500), as amended in 1977 (Public Law 95-217) and 1987 (Public Law 100-4), has the objective to restore and maintain the chemical, physical, and biological integrity of the Nation's waters. The Act provides a means to protect and improve the quality of the water resources and maintain their beneficial uses. Sections 208 and 319 of The Clean Water Act recognizes the need for control strategies for nonpoint source pollution.

To provide environmental protection and improvement emphasis for water and soil resources and water-related beneficial uses, the National Nonpoint Source Policy (December 12, 1984), the Forest Service Nonpoint Strategy (January 29, 1985), and the USDA Nonpoint Source Water Quality Policy (December 5, 1986) were developed. Best Management Practices (BMPs) were recognized as the primary control mechanisms for nonpoint sources of pollution on National Forest System lands.

In order to comply with State water quality standards, the Forest Service applies BMPs that are "consistent" with the Alaska Forest Resources and Practices Act (1990) and other applicable State water quality regulations. In recognition of the importance of BMPs, they are identified as one portion of the "Forest Service Alaska Region Water Quality Management Plan," as described in the USDA Forest Service/Alaska Department of Environmental Conservation Memorandum Of Agreement (1992).

Best Management Practices may be defined as: land management methods, measures or practices intended to minimize or reduce water pollution including, but not limited to, structural and nonstructural controls, operation and maintenance procedures, other requirements, and scheduling and distribution of activities. The site-specific application of the BMPs is designed with the consideration of geology, land type, hydrology, soil type, erosion hazard, climate, cumulative effects, and other factors in order to fully protect and maintain soil, water, and water-related beneficial uses, and to prevent or reduce nonpoint source pollution.

Direction for the use of BMPs on National Forest System lands in Alaska is included in Chapter 10 of FSH 2509.22, The Soil and Water Conservation Handbook. The handbook describes the application, monitoring, evaluation, and refinement of these BMPs. The following list is a summary of the BMPs, and includes the practice number (from the Soil and Water Conservation Handbook), name, and objective of the Best Management Practices used in the Alaska Region.

No.	PRACTICE	OBJECTIVE
12.1	Cumulative Watershed Effects Analysis	To determine the Cumulative Watershed Effects (CWE) on the beneficial uses of water caused by multiple land management activities, distributed over both time and space.
12.2	Soil and Water Resource Monitoring and Evaluation	To determine the effects of land management activities on water quality through a well planned, coordinated, and executed monitoring program; to ensure the health and safety of water users; to evaluate BMP effectiveness; and to determine the adequacy of data, assumptions, and coefficients in the Forest Plans.
12.3	Watershed Improvement Planning and Implementation	To improve degraded watershed conditions, to minimize soil erosion, and to improve water availability or quality.
12.4	Floodplain Analysis and Evaluation	To protect floodplain values and avoid, where possible, the long and short-term adverse impacts to soil and water resources associated with the occupancy and modification of floodplains.
12.5	Wetlands Analysis and Evaluation	To maintain wetland functions and avoid adverse soil and water resource impacts associated with the destruction or modification of wetlands.
12.6	Riparian Area Designation and Protection	To maintain and protect water quality and fisheries habitat, and to minimize adverse effects on riparian areas from logging and other land disturbing management activities.
12.7	Streambank Protection	To minimize sediment production from streambanks and structural abutments in natural waterways.
12.8	Oil Pollution Prevention and Servicing/Refueling Operations	To prevent contamination of surface and subsurface soil and water resources from spills of petroleum products.
12.9	Oil and Hazardous Substances Pollution Contingency Planning.	To minimize contamination of waters from accidental spills of oil and hazardous substances by use of appropriate contingency plans.
12.10	Control of Activities Under Special Use Permit	To protect surface and subsurface soil and water resources from physical, chemical, and biological pollutants resulting from activities that are under special-use permit.
12.11	Management by Closure to Use	To exclude activities that could result in significant damage to facilities which would result in impaired water quality.
12.12	Water Well Construction and Management	To protect ground water resources from contamination transmitted from water well developments.

No.	PRACTICE	OBJECTIVE
12.13	Administrative Site Planning and Management	To locate, design, and manage administrative sites to prevent water pollution and other adverse environmental and health impacts.
12.14	Planning, Design and Management of Utility Corridors	To assure that construction and maintenance of powerlines and pipelines are accomplished in a manner that minimize effects on water quality.
12.15	Management of Sanitary Facilities and Sanitary Guidelines for Temporary Camps	To prevent water pollution and health risks from the disposal of sewage at Forest Service Facilities, facilities under special use permit, and temporary camps of all types.
12.16	Control of Solid Waste Disposal	To protect surface and subsurface soil and water resources from nutrients, bacteria, and chemicals associated with solid waste disposal.
12.17	Revegetation of Disturbed Areas	To protect water quality by minimizing soil erosion.
13.1	Timber Sale Planning	To incorporate soil and water resource considerations into Timber Sale Planning.
13.2	Timber Harvest Unit Design	To ensure that timber harvest unit design will secure favorable conditions of water flow, or maintain water quality and soil productivity, and minimize soil erosion and sedimentation.
13.3	Designating Water Quality Protection Needs on Sale Area/Unit Release Maps	To delineate the location of protection areas and to ensure their recognition, proper consideration, and protection on the ground.
13.4	Limiting the Operating Period of Timber Sale Activities	To minimize soil erosion and sedimentation by ensuring the Purchaser conducts operations, including erosion control work and road maintenance, in a timely manner.
13.5	Protection of Potentially Unstable Areas	To protect potentially unstable areas and to avoid triggering mass movements of the soil mantle and resultant erosion and sedimentation.
13.6	Determining Suitability for Tractor Logging	To protect water quality from degradation by identifying those areas where tractor yarding techniques are appropriate, and by establishing guidelines for the yarding operation.
13.7	Determining Suitability for Shovel Logging	To protect soil resources and water quality from degradation by identifying those areas where shovel yarding techniques are appropriate, and by establishing guidelines for the yarding operation.
13.8	Protection of Alluvial Soils With Shallow Organic Layers	To protect alluvial soils and the overlying organic layer to maintain soil productivity.

No.	PRACTICE	OBJECTIVE
13.9	Suspended Log Yarding in Timber Harvesting	To protect water quality by protecting the soil from excessive disturbance and accelerated erosion and to maintain the integrity of the riparian area and other sensitive watershed areas where it is determined that ground-based machinery is inappropriate.
13.10	Log Landing Location and Design for Erosion Control	To design and construct landings to minimize soil erosion and water quality degradation.
13.11	Erosion Prevention and Control Measures During Timber Sale Operations	To ensure that the Purchaser's operations shall be conducted reasonably to minimize soil erosion and water quality degradation.
13.12	Revegetation of Areas Disturbed by Harvest Activities	To establish a vegetative cover on disturbed sites to minimize erosion and sedimentation.
13.13	Erosion Control Structure Maintenance	To ensure that constructed erosion control structures are stabilized and working effectively.
13.14	Acceptance of Erosion Control Measures Before Sale Closure	To assure the adequacy of required erosion control work on timber sales.
13.15	Wetland Protection During Timber Harvest	To avoid damage to the ground cover, soil, and water quality in wetlands during timber harvest.
13.16	Stream Channel Protection (Implementation and Enforcement)	1) To protect the natural flow of streams; (2) to provide unobstructed passage of stormflows; (3) to reduce sediment and other pollutants from entering streams; and (4) to restore the natural course of any stream as soon as practicable, if the stream is diverted as a result of timber management activities, (5) to maintain channel integrity and stability for protection of aquatic habitat and other beneficial uses, and (6) to avoid adverse changes in the natural stream temperature regime.
13.17	Nonrecurring "C" Provisions For Soil and Water Quality Protection	To insert nonrecurring (Special) "C" provisions into the Timber Sale Contract to protect soil and water resources, where standard "B" or "C" provisions do not apply or are inadequate to protect watershed values.
13.18	Modification of the Timber Sale Contract	To seek an Environmental Modification of the timber sale contract if new circumstances or conditions indicate that the timber sale will cause irreparable damage to soil, water, or watershed values.
13.19	Reforestation Requirement	To promote prompt reforestation and to mitigate watershed disturbance on areas with limited regeneration potential.

No.	PRACTICE	OBJECTIVE
14.1	Transportation Planning	To assure soil and water resource considerations in Transportation Planning activities.
14.2	Location of Transportation Facilities	To locate roads and trails with minimal soil and water resource impact.
14.3	Design of Transportation Facilities	To design roads and trails with minimal soil and water resource impact.
14.4	Location and Design of Log Transfer Facilities (LTF's).	To locate and design LTF's with minimal soil, water and biological impact.
14.5	Road and Trail Erosion Control Plan	Design to minimize and mitigate erosion, sedimentation, and resulting water quality degradation prior to the initiation of construction and maintenance activities. Ensure compliance through effective contract administration and timely implementation of erosion control measures.
14.6	Timing Restrictions for Construction Activities	Where effective minimize erosion by conducting operations during low risk periods.
14.7	Slope Stabilization to Minimize Mass Failures	To reduce sedimentation by minimizing the chances for road-related mass failures, including landslides and embankment slumps.
14.8	Slope Stabilization to Minimize Surface Erosion	To minimize soil erosion from cutslopes, fillslopes, and the travelway.
14.9	Control of Road Drainage	To minimize the erosive effects of concentrated water and the degradation of water quality by proper design and construction of road drainage systems and drainage control structures.
14.10	Pioneer Road Construction	To minimize sediment production associated with pioneer road construction.
14.11	Timely Erosion Control Measures on Incomplete Roads and Streamcrossing Projects	To minimize erosion of and sedimentation from disturbed ground on incomplete projects.
14.12	Control of Excavation and Sidecast Material	To reduce sedimentation from unconsolidated excavated and sidecast material caused by road construction, reconstruction, or maintenance.
14.13	Control of Construction in Riparian Areas	To minimize the adverse effects of road and trail construction on riparian areas.
14.14	Control of In-Channel Operations	To minimize stream channel disturbances and related sediment production.

No.	PRACTICE	OBJECTIVE
14.15	Diversion of Flows Around Construction Sites	To minimize downstream sedimentation.
14.16	Streamcrossings on Temporary Roads	To prevent temporary roads from damaging streamcourses, degrading water quality, or obstructing fish passage.
14.17	Bridge and Culvert Design and Installation	To minimize the impact on water quality and fisheries resources from the installation of bridges and culverts.
14.18	Development of Borrow Pits, Gravel Sources and Quarries	To minimize sediment production from borrow pits, gravel sources, and quarries, and limit channel disturbance in those gravel sources suitable for development in floodplains.
14.19	Disposal of Right-of-Way and Roadside Debris	To ensure that debris generated during road construction is kept out of streams and to prevent slash and debris from subsequently obstructing channels.
14.20	Road Maintenance	To maintain all roads in a manner which provides for soil and water resource protection by minimizing rutting, failures, sidecasting, and blockage of drainage facilities.
14.21	Road Surface Treatment to Prevent Loss of Materials	To minimize the erosion of road surface materials and consequently reduce the likelihood of sediment production.
14.22	Access and Travel Management	Reduce the potential for erosion and sedimentation from road surface disturbance during periods of high runoff and spring thaw conditions.
14.23	Snow Removal Controls	To minimize the impact of snow melt on road surfaces and embankments and to reduce the probability of sediment production resulting from snow removal operations.
14.24	Obliteration of Temporary Roads	To reduce sediment generated from temporary roads and return land to production by obliterating them at the completion of their intended use.
14.25	Surface Erosion Control at Facilities	To minimize the amount of erosion and sedimentation at facilities.
15.1	Pesticide Use Planning	To incorporate water quality and hydrologic considerations into the Pesticide Use Planning Process.
15.2	Follow Pesticide Label and EPA Registration Directions	To prevent water contamination and risk to humans from pesticide application, cleaning of equipment, and disposal of pesticide containers.
15.3	Pesticide Application Monitoring and Evaluation	To determine and document that pesticides have been applied safely and to provide an early warning for any contamination of water or non-target areas or resources.

No.	PRACTICE	OBJECTIVE
15.4	Pesticide Spill Contingency Planning	To reduce contamination of water from accidental pesticide spills.
15.5	Protection of Water Quality, Wetlands, and Riparian Areas During Pesticide Application	To minimize the risk of pesticide contamination of surface or subsurface waters, riparian areas, wetlands, and other non-target areas.
16.1	Recreation Facilities Planning	To protect soil and water resources through appropriate planning, design and location of recreational facilities.
16.2	Providing Safe Drinking Water Supplies	To protect water quality and provide safe drinking water to Forest Service facilities such as campgrounds, picnic grounds, trailheads, Visitor Information Centers, winter sport areas, and developed roadside facilities.
16.3	Assuring Proper Sanitation and Water Supplies For Special Use Facilities and Administrative Sites	To protect the quality of water both consumed by and discharged from facilities under Special Use Permit, and from administrative sites not on public water and sewer systems.
16.4	Trail Construction and Maintenance	To minimize soil erosion and water quality problems originating from trails and their drainage structures.
16.5	Management of Off-Road Vehicle Use	To control Off-Road Vehicle (ORV) use which is causing soil erosion and adverse effects on water quality and to identify corrective measures.
16.6	Protection of Water Quality Within Developed Recreation Areas	To protect water quality by regulating the discharge and disposal of potential pollutants.
16.7	Protection of Water Quality Within Dispersed Recreation Areas	To avoid slope erosion and trampling in riparian and wetland areas, and consequent loss of vegetation and degradation of water quality.
17.1	Mining Site Conditions, Planning, and Design	To incorporate soil and water resource considerations into the planning process for mining and mineral exploration operations.
17.2	Placer Mining	To incorporate soil and water resource considerations into the planning process for mining plans of operation for placer mining.
17.3	Hard Rock Mining	To incorporate soil and water resource considerations into the planning process for mining plans of operation for lode mining operations.

No.	PRACTICE	OBJECTIVE
17.4	Permits and Administration of Geophysical Operations	To protect the quality of surface and ground water from degradation resulting from geophysical activities on National Forest System lands.
17.5	Site Closure and Rehabilitation	To incorporate soil and water resource considerations into the planning process for mining plans of operation
17.6	Abandoned Mine Land Reclamation	To reduce erosion and water quality degradation by sediment and toxic substances from abandoned mined lands and mining facilities through reclamation of these lands.
18.1	Fish and Wildlife Habitat Improvement Planning	To incorporate soil and water resource considerations into planning for fish and wildlife improvement projects.
18.2	Development of Groundwater-fed Spawning and Rearing Habitat from Gravel Extraction and Other Sites	To minimize sediment production from gravel extraction and/or ground reshaping during and following construction of groundwater-fed spawning and rearing streams and ponds.
18.3	In-Channel Excavation or Disturbance During Fish and Wildlife Habitat Improvement Projects	To minimize stream channel disturbances and related sediment production during and after development of fish and wildlife habitat improvement projects.
18.4	Ground Fertilization for Wildlife Habitat Improvement	To minimize impacts to water quality in stream systems and lakes within and adjacent to areas being fertilized.
18.5	Lake Fertilization for Fish Habitat Improvement	To limit eutrophication in Forest lakes.
19.1	Fire and Fuel Management Activities and Prescriptions	To reduce flooding and erosion by reducing the frequency, intensity, and destructiveness of wildfire.
19.2	Protection of Water Quality Through Prescribed Burning Prescriptions	To maintain soil productivity, minimize erosion, and prevent ash, sediment, nutrients, and debris from entering surface waters, through the formulation of the burning prescription.
19.3	Minimizing Watershed Impacts from Fire Suppression Efforts	To avoid watershed impacts in excess of that which would be caused by the fire itself.
19.4	Stabilization of Fire Suppression Related Watershed Damage	To stabilize all areas that have had their erosion potential significantly increased, or their drainage pattern altered by suppression related activities.
19.5	Emergency Watershed Rehabilitation Following Wildfires	To minimize the loss of soil and on-site productivity, the deterioration of water quality, and threats to life and property, both on-site and off-site.

Appendix D

Stream Process Groups

APPENDIX D

STREAM PROCESS GROUPS

INTRODUCTION

In the early 1980's a method of inventorying channel types was developed for the Tongass National Forest to identify, classify, and map the distinguishing parts of stream and river (fluvial) systems. This inventory system, which was finalized for the Tongass National Forest in 1992 (Paustian et. al., 1992), allows for the logical categorization of fluvial channels and provides a process for predicting channel response to management- or naturally-caused changes.

The inventory groups channels into nine basic fluvial process groups (Table D-1). These process groups describe streams and rivers with similar physical "processes," that is with similar interrelationships between watershed runoff, landform relief, geology, and glacial or tidal influences on fluvial erosion and deposition.

Each process group includes a number of channel types. Channel types represent a finer delineation than process groups. They more precisely characterize a channel and help predict the probable responses to natural and human influences. Like process groups, channel types are defined by physical attributes, but channel types also incorporate other aspects of channel gradient, channel pattern, stream bank incision and containment, and riparian community composition. A description of each channel type is listed in Table D-2.

Channel types and process groups are used for guiding land management activities and for predicting the effects of those activities along all stream and river systems of the Tongass National Forest. In this Plan, channel types and process groups are central to the direction for Riparian Area management (see the Riparian Area Land Use Designation management prescription in Chapter 3). For further information on riparian management considerations for each of the channel types, consult Paustian et. al. (1992).

PROCESS GROUPS

Beginning on page D-5 is a discussion of each process group, including a listing of the channel types which are incorporated within the process group. An illustration of the typical setting of each of the process groups, and their relationship within a watershed, is provided in Figure D-1.

TABLE D-1

STREAM CLASSIFICATION AND STREAM LENGTH BY PROCESS GROUP

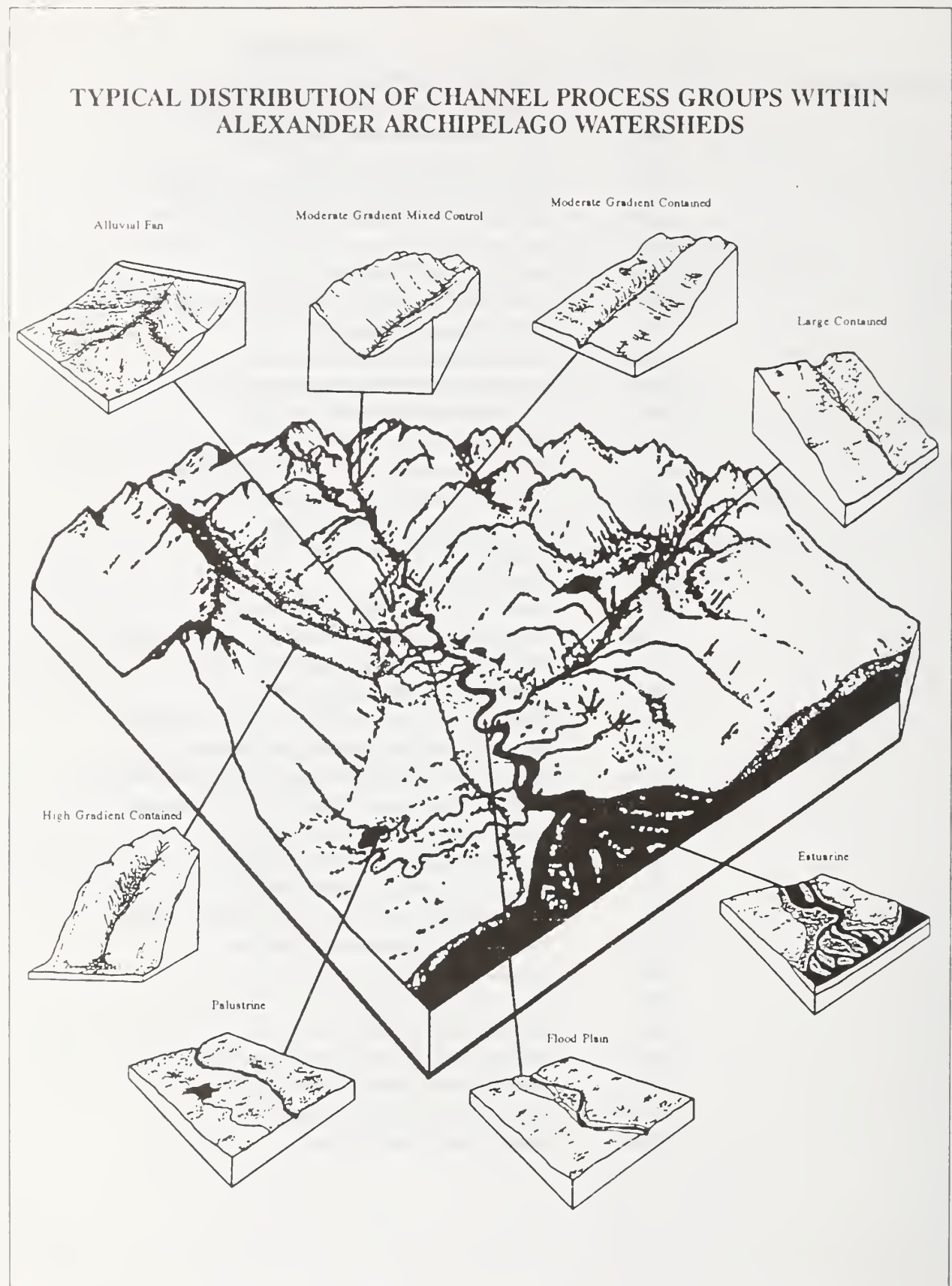
<i>Stream Process Groups</i>	<i>Channel Type Classification</i>	<i>Miles</i>
Flood Plain	FP1, FP2, FP3, FP4, FP5	4,066
Glacial Outwash	GO1, GO2, GO3, GO4, GO5	1,171
Alluvial Fan	AF1, AF2, AF8	1,423
Large Contained	LC1, LC2	657
Moderate Gradient, Mixed Control	MM1, MM2	4,140
Moderate Gradient Contained	MC1, MC2, MC3	2,792
High Gradient Contained	HC1, HC2, HC3, HC4, HC5, HC6, HC8, HC9	27,834
Palustrine	PA1, PA2, PA3, PA4, PA5	1,721
Estuarine	ES1, ES2, ES3, ES4, ES8	593

Source: Paustian et. al. (1992) & Revision GIS Database Query #Q3012A.

TABLE D-2
CHANNEL TYPE DESCRIPTIONS

<i>Channel Type</i>	<i>Description</i>
AF1	Moderate Gradient Alluvial Fan Channel
AF2	High Gradient Alluvial Cone Channel
AF8	Glacial Alluvial Cone Channel
ES1	Silt Substrate Estuarine Channel or Slough
ES2	Narrow Small Substrate Estuarine Channel
ES3	Narrow Large Substrate Estuarine Channel
ES4	Large Estuarine Channel
ES8	Broad Braided Glacial Outwash Estuarine Channel
FP1	Uplifted Beach Channel
FP2	Foreland Uplifted Estuarine Channel
FP3	Narrow Low Gradient Floodplain Channel
FP4	Low Gradient Flood Plain Channel
FP5	Wide Low Gradient Flood Plain Channel
GO1	Glacial Outwash Flood Plain Side Channel
GO2	Large Meandering Glacial Outwash Channel
GO3	Large Braided Glacial Outwash Channel
GO4	Moderate Width Glacial Channel
GO5	Cirque Channel
HC1	Shallowly Incised Muskeg Channel
HC2	Shallowly to Moderately Incised Footslope Channel
HC3	Deeply Incised Upper Valley Channel
HC4	Deeply Incised Muskeg Channel
HC5	Shallowly Incised Very High Gradient Channel
HC6	Deeply Incised Mountainslope Channel
HC8	Moderate/High Gradient Glacial Cascade Channel
HC9	High Gradient Incised Glacial Torrent Channel
LC1	Low Gradient Contained Channel
LC2	Moderate Gradient Contained Channel
MC1	Narrow Shallow Contained Channel
MC2	Moderate Width and Incision Contained Channel
MC3	Deeply Incised Contained Channel
MM1	Narrow Mixed Control Channel
MM2	Moderate Width Mixed Control Channel
PA1	Narrow Placid Flow Channel
PA2	Moderate Width Placid Flow Channel
PA3	Shallow Groundwater Fed Slough
PA4	Flood Plain Backwater Slough
PA5	Beaver Dam/Pond Channel

FIGURE D-1



Flood Plain

Stream channels in this process group include: FP1 (uplifted beach), FP2 (uplifted estuary) foreland channel types, and FP3 - FP5 (narrow to wide) floodplain channel types. Generally lowland and valley bottom streams and rivers, alluvial deposition is prevalent in these low gradient (less than 2 percent) channels. High stream flows are not commonly contained within the active channel banks and there may be some degree of flood plain development. In larger stream and river systems the riparian area width may extend well beyond 100 feet from the streambanks. Channel materials are composed of fine sediments, small boulders and cobble which are deposited by the stream.

Flooding is a fundamental process in these channels with streams typically overflowing their banks during high water. The flood plain stream channels and flood plains interact with each other through bank erosion, channel migration and overflow, leaf fall, and blowdown/tree fall. Alluvial channels process dissipate flood energy (velocity) and are an important nutrient source.

The low gradient flood plain riparian areas include the channel banks, active channel flood plains, sloughs, backwater overflow channels, and ponded swales and may extend well beyond 100 feet of the streambank. These riparian areas are extremely dynamic because flood plain streams are likely to overflow their banks during individual or seasonal storms. Because of the stream's interaction with adjacent landforms, these alluvial channels contain a rich, abundant community of aquatic life.

Streambanks consist of unconsolidated materials such as sand, gravel, or organic materials and are often unstable. Channel migration and braiding may occur. Root networks of trees and shrubs are often the only things holding unconsolidated streambanks together. Large organic debris (LOD) also plays an important role in controlling streambed and bank stability by regulating the stream's energy dissipation. Riffles formed when the stream velocity slows form good fish habitat.

Glacial Outwash

Glacial outwash channel types are alluvial channels with stream gradients usually less than three percent. This process group includes GO1 (glacial side channel), GO2 (large meandering), GO3 (large braided), GO4 (moderate width, and GO5 (cirque channel) glacial outwash channel types. With the exception of high elevation, cirque basin channel types (GO5), there are generally valley or lowland streams. Because mountain glacier meltwater is the source of runoff to these streams, they carry extremely high sediment loads and turbid water. Riparian areas are wide and may extend for more than a thousand meters in large braided outwash plain river systems.

Alluvial Fan

This process group includes AF1 (moderate gradient), AF2 (high gradient), and AF8 (glacial) alluvial fan/cone channel types. These are generally tributary streams that are located on footslope landforms in a transitional area between valley flood plains and steep mountainslopes. They are low to moderate gradient (less than 5 percent) stream channels that are strongly influenced by sediment deposits which are formed by the rapid change in transport capacity as the high energy mountainslope stream segments spill onto the valley bottoms. Drainage channels change course frequently, resulting in a multi-branch stream network. Sediment deposition tends to create elongated islands of bare cobbles and gravel between these multi-branched channels. Alluvial fan stream channels are often unstable; the water flow in them may be intermittent during the summer and winter months. Riparian areas commonly associated with these poorly contained streams are very narrow at the top of the fans and become wider as the fan spreads out. Due to the complex stream network, riparian areas for alluvial fan channels may be extensive.

**Moderate
Gradient
Mixed Control**

This process groups includes MM1 (narrow) and MM2 (moderate width) channel types are a mixture of stream channel containment. These channel types are moderate gradients (2-6 percent) streams where sediment deposition processes are limited. Some segments are controlled by bedrock or the valley walls, while other areas develop narrow flood plains. Streambanks may be boulders, cobbles or bedrock. High flows are contained within the active stream channel. Bedrock segments of these channels act as sediment transport systems; sediment is deposited in the lower gradient (flatter) and flood plain segments. Riparian vegetation is important in regulating stream energy losses thru large woody debris (LWD) input. LWD forms such water energy dissipators as log step pools and lateral scour pools. LWD strongly influences channel form, sediment transport and fish habitat in these channels. Riparian areas seldom extend beyond 100 feet from stream banks.

**Large
Contained**

Stream flow in channels in this process group are well contained by adjacent landforms, but the channels have little effect on those landforms. This process group includes LC1 (low gradient) and LC2 (low to moderate gradient 1-3 percent) large contained channel types. The adjacent influence zone often extends to the slope break above the cut valley slope. Adjacent vegetation plays a major role in controlling the rate of downslope soil movement and large woody debris (LWD) into stream channels. LWD accumulations dissipate stream energy (slow its velocity) and trap and store sediment that is being transported downstream. The area the stream influences is dependent upon upland soils and vegetation (primarily trees). The larger valley and lowland streams often have limited alluvial sediment deposition areas. Riparian areas are discontinuous, may not always be distinguishable, and are generally less than 150 feet wide.)

**Moderate
Gradient
Contained**

This process group includes MC1 (narrow, shallow incision), MC2 (moderate width and incision), and MC3 (deeply incised) moderate gradient contained channel types. Streamflow in this process group is completely contained by adjacent landforms and upper channel banks. Streambank and streambed erosion are frequently controlled by bedrock outcrops. Although they transport and deposit sediment downstream very efficiently, sediment deposition is very limited in the channels themselves. Gravel bars are infrequent channel features. Stream influence zones are dependent on the streambank slopes. Where the slopes are short, low gradient, or there are no slopes, the influence zone is narrow. If these streams have very large, high gradient sideslopes, then larger areas influence stream conditions. Riparian areas are limited to the stream bank influence zone and are generally less than 100 feet.

**High Gradient
Contained**

Channels in this process group (HC1, HC2, HC3, HC4, HC5, and HC6 channel types that are shallowly to deeply incised, high gradient (over 6 percent), mountainslope streams. High to moderate gradient glacial meltwater streams, HC8 and HC9 channel types, are also included in this process group. These first and second order streams are source streams for downstream waters and transport organic and inorganic sediments to the downstream habitats. Their stream channels are well contained within the narrow valley bottoms. Channel banks are steep and generally composed of large material, either consolidated bedrock or well-packed boulders and cobbles. Relatively high stream energy enables these streams to transport large sediment loads during spring and fall freshets (a great rise or overflowing of a stream caused by heavy rains or melted snow). Riparian areas generally extend to the upper stream bank slope break. The riparian vegetation when present along these streams are narrow strips (< 20 feet) of alder, salmonberry, devil's club, or currant/brush communities. The upper steep banks of these incised streams have a mosaic plant communities of dense conifers and shrubs. The channels are predominantly influenced by the upland or terrestrial plant communities. Soils in the adjacent upland area are often shallow and subject to downslope movement. Leaves, forest litter, and trees often move downslope into these incised channels when disturbance occurs.

Palustrine

This process group includes PA1 - PA5 palustrine wetland channel types. Channels within this process group are low gradient (less than 1 percent) streams associated with low relief landforms and wetland drainage networks such as streams, marshes, and lakes. Water movement and sediment transport are low. These channel types typically act as traps and storage areas for fine organic and inorganic sediments. Stream channels are fairly stable and contain their flows fairly well. Flood plain depositional features, such as gravel bars are absent. Channel stability is controlled mainly by dense root systems formed by sedges

and sphagnum mosses and by some bank trees when they are present. Flood waters often flow over adjacent landforms, an action which may lessen downstream flooding, and may serve as a buffer during major storms. Low gradient, slow flowing streams, such as those in palustrine channels, are often associated with temperature sensitive watersheds. Channel productivity is moderately tied to the riparian/terrestrial interaction. Although they are highly variable, riparian areas associated with these streams may be located within very large wetlands areas.

Estuarine

This process group includes ES1 (silt substrate), ES2 (narrow sand substrate), ES3 (narrow cobble substrate), ES4 (large estuary), and ES8 (glacial outwash) estuarine channel types. They occur at the mouths of watersheds with estuarine landforms (estuarine landforms are defined as major stream deltas at heads of bays or along inlets). These are all intertidal streams and are directly influenced by tidal inundation. Stream stage fluctuations, channel morphology, sediment transport, water chemistry are influenced, to some degree, by saltwater inundation in these stream segments. Estuarine channels are associated with saltwater marches, meadows, mudflats, and gravel deltas that are all predominantly depositional environments. Estuarine stream channels are usually single or multi-channeled, generally shallowly cut, and characterized by small, loose, fine textured water-deposited materials which are easily eroded. Stream containment varies from poor to fair. Much of the sediment produced from any given watershed is ultimately deposited in the estuarine channels, consequently, these channels are highly sensitive to upstream management activities. As a result, bank widths and depths are highly variable and bank and channel beds are unstable. Sedge and marshland plants dominate the streamside, interaction with plants that are further upland is minor. The amount of stream migration and braiding may vary, depending on bank and bed stability. Riparian areas may encompass the entire estuarine wetland system.

Appendix E

Electronic Sites

APPENDIX E

ELECTRONIC SITES

EXISTING/PROPOSED SITES

Tables E-1, E-2, E-3, and E-4 provide a listing of existing and proposed electronic sites authorized on the Tongass National Forest. These sites are used for electronic communication systems, including electronic transmitters, receivers, and resource monitoring equipment. An electronic site is a parcel of National Forest System land on which buildings, antenna towers, and other electronic equipment designed for communication are located. These uses are authorized by the Federal Land Policy and Management Act of 1976 (FLPMA, 43 U.S.C. 1761) (FSM 2720).

Table E-1 is an update of a previous listing found in Appendix E of the 1985-86 Amendment to the Tongass Land Management Plan (USDA Forest Service, 1985-86, Alaska Region Admin. Doc. Number 147). Errors in the previous listing have been corrected in Table E-1. These previous designations are still valid for those sites located on lands which are still within the National Forest System.

Table E-2 lists sites that were existing prior to 1985 but were inadvertently omitted from Appendix E of the 1985-86 Amendment to the Tongass Land Management Plan. The sites in Table E-2 are within the National Forest System and are herewith designated as electronic sites for future additional joint occupancy and use, as provided in Forest Service Manual 2728.

Table E-3 lists electronic sites designated in places other than the Forest Plan. They have undergone analysis other than in the Forest Plan, and are separate from those listed in Tables E-1 or E-2.

Table E-4 lists sites that have not yet been designated as electronic sites, and which will require a separate analysis prior to designation. If not already identified in documents designating individual electronic sites, the primary types of use at each site will be identified in the individual site plans.

ELECTRONIC SITE COVERAGE

Forest Service Manual direction in 2728 provides that electronic sites under special use permit should be designated within the forest plan, when possible. When not designated in the forest plan, this direction further provides that a site analysis should be completed on a forest-wide basis, to include both existing and potential sites. To satisfy this requirement, the Forest Service

contracted with the U.S. Department of Commerce, National Telecommunications and Information Administration (NTIA), in Boulder, Colorado, to analyze existing and proposed electronic sites within, and adjacent to, the Tongass National Forest, using computer modeling to determine geographic areas of coverage within the Forest.

The purpose of this analysis was to identify geographic areas where electronic site coverage is adequate and where it is not. It may be appropriate to add additional future sites in those areas currently lacking adequate coverage.

This study does not directly result in the designation of new electronic sites by the Regional Forester; however, it does provide a forest-wide analysis to indicate areas where future site establishment may be warranted, subject to further site-specific analysis. To further assist in analyzing current and future proposals, each administrative area has been provided maps and computer printouts from the NTIA analysis which display electronic signal propagation for each site analyzed (on an individual site basis), at a scale of 1:1,266,600, as well as a composite by administrative area, on a scale of 1:500,000. These maps and computer printouts will be retained by the lands staff groups at each of the three administrative areas on the Forest.

In addition to providing information for use in consideration of potential future sites under special use permit, data from this analysis will also be useful to determine the location of radio electronic sites needed by the Forest Service for administrative purposes and sites needed by Forest Service contractors which would be authorized by contract provisions.

METHODS

Between December 1990 and February 1992, NTIA ran a computer analysis of 91 existing and proposed electronic sites. Of these 91 sites, 22 are located on the Stikine Area, 37 on the Chatham Area, 31 on the Ketchikan Area, and 1 site is located on State Forest land near Haines. As described above, Tables E-1, E-2, E-3, and E-4 contain a complete listing of these sites and their locations. The NTIA analysis used the Communication System Performance Mode (CSPM) program to map shaded contour plots of radio propagation predictions for the 91 specified sites. The program and procedure are further described in section 17, A User's Guide to CSPM, found in the Telecommunications Analysis Services NTIA User Guide, available from the U.S. Department of Commerce, National Telecommunications and Information Administration, Mail Stop ITS.S4, 325 Broadway, Boulder, CO 80303.

Outputs displayed available power at greater than -87.0 dBm, -100.0 to -87.0 dBm, and less than -100.0 dBm. Geographic areas displaying available power greater than -87.0 dBm will receive adequate coverage from a 5 watt transmitter and areas displaying available power from -100.0 to -87.0 dBm will receive

adequate coverage from a 25 watt transmitter. Areas with less than -100.0 dBm will require transmitter power greater than 25 watts.

Terrain data was provided through a separate contract with the USGS Earth Science Information Center at 4230 University Drive, Anchorage, AK 99508-4664. They transmitted Digital Elevation Model (DEM) files to NTIA, in Defense Mapping Agency (DMA) format, at a scale of 1:250,000 for the following USGS Quadrangles, to encompass the entire Tongass National Forest: Bradfield Canal (all), Craig (all), Ketchikan (all), Petersburg (all), Port Alexander (all), Sitka (all), Sumdum (all), Dixon Entrance (all), Prince Rupert (all), Taku River (west 1/2), Yakutat (all), Skagway (all), Atlin (west 1/2), Mt. Fairweather (all), and Juneau (all).

On January 18, 1991, a survey was sent to interested parties to identify electronic site needs within the Stikine Area. Response to this survey was analyzed by the Forest Service and resulted in an EIS and ROD which identified a need for a communications site at Crystal Mountain (USDA Forest Service, Alaska Region Doc. R10-MB-147, August 1991). A subsequent expanded study conducted by the Forest Plan Revision Team included the other administrative areas of the Tongass National Forest.

On March 18, 1991, a letter was sent to 33 existing and potential users of electronic sites, within all three administrative areas of the Tongass National Forest. This letter described the analysis to be conducted under contract to NTIA, and requested specific information from interested persons who foresee a need over the next 10 to 15 year planning horizon, for additional electronic sites which are not already provided for. We received two replies to the March 18, 1991 letter. Alaska Aviation Radio, Inc. and ALASCOM both provided some general information describing future plans related to electronic uses but no new sites were proposed.

Forest and Regional Office radio technicians were consulted to obtain user assumptions for NTIA computer modeling which best represented electronic site needs forest-wide. These assumptions included: (1) a transmitter antenna height of 30 feet to center of radiation, with a maximum height of 40 feet; (2) a receiver antenna height of 10 feet; (3) transmitter power of 5 watts low, without gain, and 25 watts high, with 6 db gain, equal to 100 watts ERP; (4) omnidirectional antennas; (5) frequency equal to 200 MHz; (6) mobile application; and (7) reliability equal to 90 percent.

There was also an effort to remain consistent with assumptions used in the Stikine study. The analysis used in this Plan is basically an expansion of the earlier analysis completed for the Stikine Area. This analysis incorporates the Stikine data, updates it, and expands the study area to include the Ketchikan and Chatham Areas.

Two sites, Moore Mountain and High Mountain on Gravina Island, were analyzed at both 200 MHz and 450 MHz, to allow a comparison of the effects of changing frequency at these sites. Monetary constraints precluded experimentation with other variables.

RESULTS

Maps in the planning record display the electronic signal predictions resulting from NTIA computer modeling, at a scale of 1:1,000,000. Tables E-5 and E-6 summarize the maps by showing which VCU's receive weak or poor signals over at least significant portions of the VCU (greater than 10 percent, as estimated from visual observations of the map). VCU boundaries were located from the Tongass National Forest Land Management Plan Map Update, dated March 1991. Where there is less than -100.0 dBm available power in significant portions of a VCU (Table E-5) and between -100.0 dBm to -87.0dBm available power in significant portions of a VCU (Table E-6), better electronic signal coverage may require additional sites beyond those analyzed.

One error may have been included in the analysis. The Akwe River site, near Yakutat, appears to be located in the wrong position. If this analysis is run again, the location of Site 25 should be replotted. This change may result in slightly different coverage on the Yakutat Forelands; however, because the topography is relatively gentle there, no large difference is anticipated.

The Moore Mountain site displays slightly better coverage at 200 MHz, than at 450 MHz, especially within the -100.0 to -87.0 dBm range of available power. Maps in the planning record show the results of varying frequency at the Moore Mountain site.

The High Mountain site on Gravina Island also displays slightly improved coverage at 200 MHz, within both the greater than -87.0 dBm range and the -100.0 to -87.0 dBm range. Maps in the planning record also show the results of varying frequency at 200 and 450 MHz at the High Mountain site on Gravina Island.

CONCLUSIONS AND DISCUSSION

Forest-wide, electronic signal coverage appears to be good in some locations with coverage weak or lacking in others. Coverage is lacking as you approach the Canadian border on the east side of the forest, along its entire length; however, there is coverage along the coastal portion of the mainland and at pockets around Hyder, and along the Stikine River and the Bradfield Canal. There is generally good coverage around the cities of Juneau, Sitka, Ketchikan, and Petersburg.

Within the Chatham Area, Lynn Canal has good coverage along the coast but coverage is lost as you move inland. Admiralty and Chichagof Islands have coverage along coastal areas which is either lost or weak at inland locations. Baranof Island has good coverage on the northern portion but

poor coverage on the southern end. Kruzof Island has good coverage throughout. Coverage in the Yakutat area is generally very good around the City of Yakutat and along the Forelands, coastal areas of Yakutat Bay and portions of the coastal areas of Russell Fiords. The mountainous regions of Russell Fiords Wilderness and the Brabazon Range Addition receive weak to poor coverage.

In the Stikine Area, Kupreanof, Kuiu, Mitkof, Zarembo, Etolin, and Wrangell Islands all have generally very good coverage, with the exception of some scattered weak spots and a lack of coverage on the south end of Kuiu Island.

On the Ketchikan Area, the northern two thirds of Prince of Wales Island has very good coverage, with a few scattered holes of weak or missing signal. The southern end of Prince of Wales Island has poor coverage, as does most of Dall Island. The western and southern portions of Revillagigedo Island have good coverage but it is poor on the northern and eastern portions. Much of Misty Fiords National Monument has poor coverage, with exceptions at Quartz Hill and some coastal areas along the southwestern portion.

Table E-1
Electronic Sites Previously Designated in the Forest Plan

Area and District	Site Name	Site Location	Site Size	Permittee or Owner	Elevation (in feet)
STIKINE AREA:					
Petersburg R.D.	Lindenberg Peak	SW4NE4, Sec. 23, T59S, R78E, CRM 56° 44' 38" N, 133° 04' 30" W	1 ac.	Forest Service ACE (VHF/UHF)	3,249
Petersburg R.D.	Farragut Peak	NE4, Sec. 8, T55S, R78E, CRM 75° 07' 22" N, 133° 02' 35" W	1 ac.	Forest Service (VHF repeater)	3,810
	(Previously designated as Franklin Peak)				
Petersburg R.D.	Kuiu Mtn. #2	NW4, Sec. 9 T61S, R73E, CRM 56° 36' 42" N, 132° 02' 50" W	1 ac.	Forest Service Icicle (VHF)	3,355
Petersburg R.D.	Duncan Canal	SW4NW4, Sec. 17, T59S, R78E, CRM 56° 45' 12" N, 133° 09' 50" W	2 ac.	Alascom, Coast Guard	2,606
Petersburg R.D.	Petersburg Mtn.	SW4SW4, Sec. 21, T58S, R79E, CRM 56° 49' 33" N, 132° 59' 10" W	1 ac.	Alascom (passive microwave)	1,600
Petersburg R.D.	Horn Cliff	SW4NW4, Sec. 14, T58S, R80E, CRM 56° 50' 50" N, 132° 46' 35" W	1 ac.	Alascom (passive microwave)	2,880
Wrangell R.D.	Elbow Mtn.	NW4, Sec. 3, T60S, R86E, CRM 56° 42' 12" N, 133° 52' 45" W	1 ac.	Forest Service (micro wave/VHF)	3,900
Wrangell R.D.	Fools Peak	SW4, Sec. 21, T65S, R87E, CRM 56° 13' 02" N, 131° 58' 27" W	1 ac.	Forest Service (VHF repeater)	3,133
Wrangell R.D.	Kashevarof (Shrubby Island)	NW4, Sec. 13, T65S, R80E, CRM 56° 04' 10" N, 132° 58' 35" W	1 ac.	Alascom (microwave)	500
Wrangell R.D.	Navy Peak	NW4SW4, Sec. 15, T66S, R84E, CRM 56° 08' 45" N, 132° 24' 37" W	2 ac.	unoccupied	3,665
CHATHAM AREA:					
Sitka R.D.	Moore Mtn.	NW4NE4, Sec. 31, T49S, R64E, CRM 57° 35' 04" N, 135° 11' 58" W (NTIA run at both 200 MH and 450 MH.)	1 ac.	Alaska Pulp Corporation, Forest Service	3,075
Sitka R.D.	Steelhead	NW4SE4, Sec. 13, T47S, R59E, CRM 57° 47' 27" N, 135° 56' 26" W	1 ac.	Forest Service	2,339
Sitka R.D.	South Passage	57° 44' 48" N, 134° 58' 04" W	5 ac.	Alascom	2,031
Sitka R.D.	Rodman Bay	57° 22' 55" N, 135° 18' 45" W	2 ac.	Alascom	3,100

Sitka R.D.	Upper Kruzof	SE4NW4, Sec. 18, T53S, R61E, CRM 57° 16' 30" N, 135° 46' 36" W	1 ac.	Forest Service, Island Communications	2,350
Sitka R.D.	Mud Bay	SE4SW4, Sec. 25, T54S, R61E, CRM 57° 09' 09" N, 135° 38' 45" W	1 ac.	Alascom, Forest Service	1,055
Sitka R.D.	Manley Mtn.	57° 06' 55" N, 134° 18' 30" W	5 ac.	Coast Guard (VHF/FM) Alascom, Forest Service	2,215
Sitka R.D.	Mt. Furuheim Area	SW4SW4, Sec. 18, T56S, R66E, CRM 57° 00' 52" N, 134° 59' 17" W	1 ac.	Forest Service	5,328
Sitka R.D.	Biorka Island	56° 51' 32" N, 135° 33' 40" W Non-NFS land administered by FAA.	151 ac.	FAA, Forest Service	230
Hoonah R.D.	Pelican	SE4SE4, Sec. 26, T44S, R55E, CRM 58° 01' 08" N, 136° 22' 04" W	1 ac.	Alascom	2,095
Hoonah R.D.	Adolphus	NE4NE4, Sec. 6, T49S, R59E, CRM 58° 15' 06" N, 135° 48' 42" W	0.43 ac.	Alascom	1,670
Hoonah R.D.	Neka Mtn.	SW4NW4NW4, Sec. 33, T43S, R59E, CRM 58° 06' 11" N, 135° 47' 15" W	1 ac.	Forest Service	3,139
Hoonah R.D.	Sisters Island	E2NW4, Sec. 3, T43S, R62E, CRM 58° 10' 20" N, 135° 15' 24" W	42 ac.	FAA	30
Juneau R.D.	Bessie Mtn.	SW4, Sec. 16, T38S, R64E, CRM 58° 34' 43" N, 134° 51' 16" W	0.9 ac.	Alascom	2,850
Juneau R.D.	Auke Mtn. #1	NW4NE4, Sec. 20, T40S, R65E, CRM 58° 23' 26" N, 134° 42' 37" W	0.7 ac.	Forest Service, Alascom	1,870
Juneau R.D.	Beezer Mtn.	SE4, Sec. 13, T49S, R74E, CRM 57° 37' 06" N, 133° 27' 25" W	1 ac.	Forest Service	4,100
Juneau R.D.	William Henry Peak	SE4SW4, Sec. 17, T36S, R61E, CRM 58° 44' 50" N, 135° 17' 00" W	1 ac.	Forest Service	3,458
Juneau R.D.	Point Howard	E2, Sec. 3, T41S, R63E, CRM 58° 20' 23" N, 135° 04' 38" W	1.3 ac.	Alascom	1,748
Juneau R.D.	Mt. Robert Barron	SE4, Sec. 18, T42S, R65E, CRM 58° 13' 38" N, 134° 50' 21" W	1 ac.	Forest Service, Coast Guard, FAA, Alaska Div. Telecom. Temco Helicopters (VHF/FM)	3,475
Admiralty N.M.	Washburn Peak	NE4SW4, Sec. 14, T46S, R70E, CRM 57° 49' 51" N, 133° 56' 52" W	1 ac.	Snettisham	1,400
Admiralty N.M.	(Previously designated as Randolph Peak) Wheeler Creek	NW4, Sec. 28, T44S, R65E, CRM 58° 01' 58" N, 134° 41' 49" W	1 ac.	Alascom	100
Admiralty N.M.	Windfall Harbor	SW4NW4, Sec. 34, T47S, R69E, CRM 57° 45' 15" N, 134° 13' 30" W	1 ac.	Forest Service	2,920

Admiralty N.M.	Angeon Admin. Site	SW4, Sec. 31, T50S, R68E, CRM 57° 30' 02" N, 134° 34' 44" W Most of site is either city or Kootznoodoo land, except for a small sliver of NFS.	1 ac.	Alascom	100
Yakutat R.D.	Russell Fiord #1	NW4NE4, Sec. 3, T24S, R34E, CRM 59° 51' 33" N, 139° 36' 20" W	1 ac.	Park Service	3,950
Yakutat R.D.	Akwe River	SW4SW4, Sec. 9, T30S, R39E, CRM 59° 20' 40" N, 139° 53' 50" W	5 ac.	FAA, Forest Service	1,210
KETCHIKAN AREA:					
Craig R.D.	1/2 Mile	SW4NW4, Sec. 6, T73S, R82E, CRM 55° 34' 13" N, 133° 00' 54" W Located on private land owned by Klawock Heenya Corp.	1 ac.	Alascom	2,166
Craig R.D.	Hill 1400	Section 31, T75S, R82E, CRM 55° 19' 25" N, 133° 00' 21" W	1.25 ac.	Alascom	1,399
Ketchikan R.D.	Bell Island	SE4, Sec. 11, T68S, R89E, CRM 55° 54' 30" N, 131° 42' 05" W	0.5 ac.	Rediscovery Lodge	2,000
Ketchikan R.D.	Black Mountain #1	NW4, Sec. 14, T75S, R92E, CRM 55° 17' 30" N, 131° 22' 00" W	0.25 ac.	Rainbird Broadcasting	2,052
Ketchikan R.D.	Betton Head	SE4, Sec. 25, T73S, R89E, CRM 55° 30' 32" N, 131° 49' 21" W	0.46 ac.	Rainbird Broadcasting	1,138
Ketchikan R.D.	High Mtn. (Gravina)	SW4, Sec. 18, T75S, R90E, CRM 55° 21' 45" N, 131° 45' 15" W (NTIA run at both 200 MH and 450 MH.)	0.01 ac.	Rainbird Broadcasting, Alaska Aviation, KPU Pond Reef Fire Dept., Forest Service	2,506
Thorne Bay R.D.	Cape Pole	NE4SE4NW4, Sec. 22, T68S, R75E, CRM 55° 57' 57" N, 133° 47' 33" W	0.04 ac.	Alascom	10
Thorne Bay R.D.	Ratz Mtn. #1	SE4, Sec. 9, T70S, R83E, CRM 55° 37' 07" N, 132° 22' 39" W	0.1 ac.	Alascom	2,862
Thorne Bay R.D.	Ratz Mtn. #2	SE4SE4, Sec. 26, T69S, R82E, CRM 55° 51' 10" N, 132° 47' 30" W	0.005 ac.	South Coast	3,161
Thorne Bay R.D.	Ratz Mtn. #3	SE4, Sec. 26, T69S, R82E, CRM 55° 51' 10" N, 132° 47' 30" W	1 ac.	Alaska Aviation, Alaska Loggers	3,156
Thorne Bay R.D.	Coffman	SE4, Sec. 35, T67S, R81E, CRM 56° 48' 02" N, 132° 48' 16" W	0.156 ac.	Alascom, Sitka Telephone	30
Thorne Bay R.D.	Thorne Bay	NW4NW4, Sec. 27, T71S, R84E, CRM 55° 41' 30" N, 132° 31' 30" W Located on private land.	0.45 ac.	Alascom	87
Thorne Bay R.D.	Tolstoi II	Section 16, T72S, R85E, CRM 55° 37' 07" N, 132° 22' 39" W	1 ac.	Alascom	2,210

Misty Fiords N.M.	Quartz Hill	SE4, Sec. 35, T74S, R98E, CRM 55° 18' 10" N, 130° 32' 10" W	0.1 ac.	U.S. Borax	3,800
Misty Fiords N.M.	High Mtn. (Revilla)	NE4, Sec. 19, T80S, R97E, CRM 54° 55' 05" N, 130° 50' 26" W	0.459 ac.	Alascom (Proposed for Forest Service)	1,976
Misty Fiords N.M.	Mt. Dolly	NE4, Sec. 18, T68S, R100E, CRM 55° 58' 16" N, 130° 00' 30" W	0.5 ac.	Scotties Gold Mine (Proposed for Forest Service)	5,475

Table E-2
Electronic Sites Existing Prior to 1985 Which Were Inadvertently Omitted from the 1985-86 Forest Plan Amendment

<u>Area and District</u>	<u>Site Name</u>	<u>Site Location</u>	<u>Site Size</u>	<u>Permittee or Owner</u>	<u>Elevation (in feet)</u>
STIKINE AREA:					
Petersburg R.D.	Cape Fanshaw	SE4, Sec. 10, T54S, R75E, CRM 57° 12' 22" N, 133° 28' 07" W	2 ac.	Forest Service (VHF) Coast Guard (VHF/FM) FAA	2,100
Petersburg R.D.	Level Island	Section 28, T62S, R79E, CRM 56° 28' 05" N, 133° 05' 00" W	120 ac.	FAA (VHF)	25
Petersburg R.D.	Kuiu Mtn. #1	Site was established in 1964 and authorized by MOU. SW4NW4, Sec. 5, T61S, R73E, CRM 56° 36' 45" N, 134° 02' 07" W	2 ac.	FAA (VHF)	3,500
Wrangell R.D.	Etolin (Keating)	Site was established prior to 1980 and authorized by MOU. W2SW4, Sec. 17, T66S, R83E, CRM 56° 08' 50" N, 132° 37' 20" W	1 ac.	Forest Service (VHF repeater)	3,051
Wrangell R.D.	Zarenbo	Site was established approximately 1979. SE4SW4, Sec. 1, T64S, R80E, CRM 56° 20' 45" N, 132° 51' 35" W	2 ac.	Forest Service, Coast Guard (micro wave/VHF)	2,444
Wrangell R.D.	Etolin Island Comm. Site	Under permit to TEMSCO prior to 1985. NW4, Sec. 22, T66S, R84E, CRM 56° 08' 12" N, 132° 24' 08" W	1 ac.	Alaska Energy Authority Communications Unlimited	3,500

Site was established in middle 1960's for ALASCOM, who occupied it until 1983, at which time Alaska Energy Authority began occupancy of site.

CHATHAM AREA:

Hoonah R.D.	Point Althorpe	E2, Sec. 33, T44S, R55E, CRM 58° 05' 36" N, 136° 24' 46" W Site was established October 1979. Coast Guard requested the site be added to MOU, in letter dated 9/8/86.	2 ac.	Coast Guard (VHF/FM)	2,393
Juneau R.D.	Point Bishop	NW4, Sec. 28, T42S, R69E, CRM 58° 12' 12" N, 134° 08' 36" W Uses were approved by 9/2/82 Regional Forester letter.	0.1 ac.	National Weather Service	20
Juneau R.D.	Heintzleman Ridge	SW4, Sec. 29, T40S, R66E, CRM 58° 22' 12" N, 134° 32' 54" W Site was established 9/9/68.	1 ac.	KJUD, KSUP	1,400
Juneau R.D.	Sullivan River	NE4, Sec. 23, T34S, R60E, CRM 58° 54' 31" N, 135° 21' 18" W Site was established 4/6/81.	0.9 ac.	Alascom	182
Juneau R.D.	Coughlan Island	NW4, Sec. 33, T41S, R65E, CRM 58° 21' 10" N, 134° 42' 09" W Site was established 11/13/58.	3.6 ac.	FAA	50

KETCHIKAN AREA:

Ketchikan R.D.	Shoal Cove	Secs. 22 and 23, T74S, R93E, CRM 55° 26' 26" N, 131° 15' 25" W Site was authorized by R-10/USCG MOU of 12/7/75.	241 ac.	U.S. Coast Guard (Loran C Station)	300
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Table E-3

Electronic Sites Designated Other than in the Forest Plan or Through Analysis and Amendment to the Forest Plan Separate from Those Listed and Discussed in Tables E-1 and E-2

Area and District	Site Name	Site Location	Site Size	Permittee or Owner	Elevation (in feet)
STIKINE AREA:					
Petersburg R.D.	Crystal Mountain	SW4NW4, Sec. 13, T61S, R80E, CRM 56° 35' 05" N, 132° 51' 55" W Analysed in an FEIS titled Crystal Mountain Communication Site Designation (Alaska Region Doc. R10-MB-147, dated August 1991) and designated by Deputy Regional Forester in R00, 8/6/91.		Crystal Mtn. Comm. (VHF/UHF)	3,317

Petersburg R.D. Rowan Mountain
(Proposed) SH4, Sec. 6, T60S, R71E, CRM Forest Service-CA, APC 3,210
56° 42' 08" N, 134° 17' 50" W (VHF)
Categorically Excluded by Stikine Area in SA letter of January 9, 1992.

CHATHAM AREA:

Juneau R.D. Williams Mtn.
(Proposed) SH4, Sec. 7, T43S, R70E, CRM 1 ac. FAA 3,336
58° 09' 09" N, 134° 01' 55" W
Designated by EA approved 6/5/91 by Regional Forester.
Yakutat R.D. Russell Fiord #2 Section 7, T26S, R36E, CRM 1 ac. Forest Service 2,505
59° 40' 40" N, 139° 22' 35" W
Designated by EA approved 8/28/87 by Regional Forester.

KETCHIKAN AREA:

Ketchikan R.D. Saw Ridge NE4, Sec. 25, T76S, R93E, CRM 1 ac. FAA 2,250
55° 15' 25" N, 131° 12' 22" W
Designated by an EA titled "FAA Remote Communication Outlet (RCO)", approved by Regional Forester on 5/27/88.

Table E-4
Sites not Yet Designated as Electronic Sites

Area and District	Site Name	Site Location	Site Size	Permittee or Owner	Elevation (in feet)
STIKINE AREA:					
Petersburg R.D.	Sumner (Proposed)	NW4N2, Sec. 26, T61S, R80E, CRM 56° 33' 30" N, 132° 52' 55" W			2,730
Petersburg R.D.	S. Kupreanof	Being analysed for communication site designation in a separate site-specific analysis.		Alascom	1,960
		Section 4, T62S, R76E, CRM		(VHF/microwave)	
Wrangell R.D.	Tyee (Proposed)	NE4, Sec. 26, T65S, R90E, CRM 56° 12' 25" N, 131° 26' 15" W		Alaska Power Authority	4,716
Wrangell R.D.	Woronkofski	NW4SE4, Sec. 20, T63S, R83E, CRM 56° 23' 15" N, 132° 29' 15" W			3,204
		Being analysed for communication site designation in a separate site-specific analysis.			

CHATHAM AREA:

Sitka R.D.	Sukoi	SW4, Sec. 9, T53S, R61E, CRM 57° 17' 01" N, 135° 43' 39" W	1 ac.	FAA	1,897
		Uses were approved by a 3/10/83 Forest Supervisor Decision Notice/FONSI.			
Sitka R.D.	Doolith Mountain (Proposed)	SW4, Sec. 25, T48S, R57E, CRM 57° 40' 30" N, 136° 06' 40" W		Forest Service	2,159
		Non-NFS patented mining claim.			
Sitka R.D.	Catherine Island	NE4, Sec. 19, T52S, R62E, CRM 57° 20' 51" N, 134° 52' 00" W	1 ac.	Forest Service	2,256
Hoonah R.D.	Seal Mtn.	NE4, Sec. 11, T45S, R63E, CRM 57° 59' 35" N, 135° 09' 12" W	5 ac.	Forest Service	3,250
Juneau R.D.	Saddle Mtn. (Proposed)	SE4, Sec. 19, T41S, R67E, CRM 58° 17' 52" N, 134° 30' 30" W	1 ac.	Alaska State Troopers (VHF radio relay)	3,068
		Site was conveyed to the State of Alaska.			

KETCHIKAN AREA:

Craig R.D.	12-Mile	55° 18' 50" N, 132° 47' 10" W		Forest Service	2,351
Craig R.D.	Sunny Hay Mountain (Proposed)	55° 28' 05" N, 133° 05' 10" W		Forest Service	2,500
		Non-NFS Native land.			
Craig R.D.	Polk (Proposed)	55° 22' 30" N, 132° 33' 00" W		Forest Service	2,925
Ketchikan R.D.	Black Mountain #2	55° 16' 50" N, 131° 23' 55" W		Forest Service	2,058
Ketchikan R.D.	Mount Burnette	55° 44' 50" N, 132° 05' 20" W		Forest Service	2,450
Ketchikan R.D.	Orchard	55° 50' 10" N, 131° 21' 05" W		Forest Service	2,850
Thorne Bay R.D.	Twin Peaks	55° 46' 00" N, 133° 08' 30" W		Forest Service	2,271
Thorne Bay R.D.	Setters Lake	SE4, Sec. 32, T71S, R84E, CRM 55° 40' 02" N, 132° 33' 18" W	0.92 ac.	Alascom	800
Thorne Bay R.D.	Thorne Bay Hill	55° 44' 30" N, 132° 45' 30" W		Forest Service	1,100
Thorne Bay R.D.	Red Bay Mountain	56° 15' 20" N, 133° 24' 30" W		Forest Service	2,800
		(Stikine Area analyzed this site through NTIA.)			
Misty Fiords N.M.	Boca	55° 22' 15" N, 130° 28' 00" W		Forest Service	3,645
Misty Fiords N.M.	Punchbowl	55° 30' 45" N, 130° 48' 32" W		Forest Service	2,450
Misty Fiords N.M.	Bakewell	55° 16' 30" N, 130° 41' 30" W		Forest Service	2,000

LANDS LOCATED OUTSIDE THE TONGASS N.F.:

Haines State Forest	Rainbow Glacier (Proposed)	SW $\frac{1}{4}$, Sec. 33, T31S, R59E, CRM 59° 08' 26" N, 135° 29' 31" W Non-NFS State land.	Forest Service-CA	3,472
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Table E-5

Listing of VCU's with Poor (less than -100 dBm) Electronic Signal Coverage

<u>Management Area</u>	<u>VCU</u>
CHATHAM AREA	
C01	1-7, 9, 11, 19
C02	12-15, 22
C02a - Berners Bay Legislated LUD II	12, 13, 16, 17
C03	23
C04	21, 22, 39
C07	38
C08	42-44, 47, 48, 59, 60
C09	40, 45, 46, 49
C10	50, 53-55, 57, 58, 61
C11 - Tracy Arm - Fords Terror Wilderness	62, 63, 65, 67, 78
C11a - Chuck River Wilderness	76
C13	77
C14	79
C15	95, 96, 98
C16 - Endicott River Wilderness	100, 103-105, 110
C19	121-123
C22 - Admiralty N.M./Kootznoowoo Wilderness	143, 148, 149, 152, 170, 182
C26 - Pt. Adolphus/Mud Bay Legislated LUD II	190
C29	223, 224
C34	232
C35 - Lisianski River/Upper Hoonah Sound Legislated LUD II	247, 249, 250, 251
C38 - West Chichagof - Yakobi Wilderness	259, 263, 264-266, 268
C40	312, 313
C46	311
C47	317

C48	318, 321, 323
C49 - South Baranof Wilderness	329, 332, 333, 344-348
C50	350
C51	334-343
C52 - Russell Fiord Wilderness	352, 353, 357, 374, 378
C58 - Yakutat Forelands Legislated LUD II	383, 386, 387, 389
C59	354, 385, 390-394, Brabazon Range Addition

STIKINE AREA

S03	91, 92, 481, 485, 488
S04	401
S06a - Kuiu Wilderness	408
S07	410, 412
S25	476
S26	503
S27	508
S28	506, 507, 511, 513
S29	515, 516
S30	519
S31	510
S34 - Stikine LeConte Wilderness	490, 491, 494, 495, 498-500
S35	486, 489

KETCHIKAN AREA

K03a - Mt. Calder/Mt. Holbrook Legislated LUD II	541
K12 - Coronation Island, Warren Island, Maurelle Islands Wilderness	564, 565
K13a - Outside Islands Legislated LUD II	567, 569
K16 - Karta River Wilderness	608
K17	610
K18	674

K20	634, 637
K21	668-670, 673.1, 673.2, 685, 688, 689
K22	640-657, 659-663, 666
K23	664, 665, 667, 866
K24	677-679, 681
K25	682, 683, 691-693
K26	684
K27 - South Prince of Wales Wilderness	687, 690, 696, 698, 699, 705-707
K27a - Nutkwa Legislated LUD II	686
K28	694, 695, 698-704
K31	724, 726-729
K32	732-734, 739, 744
K33 - Naha Legislated LUD II	742
K34	745
K39	748
K43 - Misty Fiords National Monument/Wilderness	730, 754, 773-776, 778-790, 792-803, 808-818, 820, 821, 823, 825, 829, 833-839, 842-858
K44	804
K45	805, 807

Table E-6

Listing of VCU's with Weak (-100.0 dBm to -87.0) Electronic Signal Coverage

<u>Management Area</u>	<u>VCU</u>
CHATHAM AREA	
C01	8-10, 18
C04	2, 39
C05	26
C09	46
C10	55, 57
C11 - Tracy Arm - Fords Terror Wilderness	67
C11a - Chuck River Wilderness	76
C13	77
C14	80, 83, 84
C15	99
C16 - Endicott River Wilderness	102
C17	111
C18	113, 114, 118
C19	119, 121
C22 - Admiralty N.M./Kootznoowoo Wilderness	145, 146, 150, 151, 153, 154, 157, 158, 161, 162, 165, 168, 170-173, 177, 180-182
C23 - Pleasant/Lemesurier/Inian Islands Wilderness	186
C25	256, 257
C26 - Pt. Adolphus/Mud Bay Legislated LUD II	189, 190, 192, 193
C27	193
C29	222, 224-227
C30	203, 204, 215-218
C31	212
C32	219-221

C33	228, 229
C34	230-234, 246
C35 - Lisianski River/Upper Hoonah Sound Legislated LUD II	247, 248, 250, 251, 282, 283, 285
C36 - Kadashan Legislated LUD II	235
C38 - West Chichagof - Yakobi Wilderness	254, 255, 258, 261, 264, 267,270, 274-278
C39	280, 281
C40	279, 287-289, 299, 301, 312, 313
C41	294
C42	295
C43	296, 298, 314, 315
C46	311
C47	316, 317, 325-328
C48	318, 319, 322, 324
C49 - South Baranof Wilderness	329-333, 345, 346, 348
C50	349, 350
C51	335-339
C52 - Russell Fiord Wilderness 374, 378	352, 353, 355, 357, 360, 361, 374, 378
C58 - Yakutat Forelands Legislated LUD II	383, 387, 389
C59	354, Brabazon Range Addition
C60	395

STIKINE AREA

S01	87
S02	90
S03	91, 92, 481, 482, 485, 488
S06 - Tebenkof Bay Wilderness	404
S06a - Kuiu Wilderness	408, 409, 415
S07	411-413

S08	414
S10	422, 444
Non-NFS Land at Kake	423
S13	440
S15 - Petersburg Creek - Duncan Salt Chuck Wilderness	445
S23	462, 463
S24 - South Etolin Wilderness	472-474
S25	476, 478
S26	501-504
S27	508, 509
S28	506, 507, 511, 512
S29	514, 516
S30	518, 519
S31	510, 520, 521
S32 - Anan Creek Legislated LUD II	522
S33	524, 526
S34 - Stikine - LeConte Wilderness	490-495, 497-500
S35	484, 486, 487, 489

KETCHIKAN AREA

K03	528, 531, 536, 537
K03a - Mt. Calder/Mt. Holbrook Legislated LUD II	528, 531, 536, 541, 542, 547
K04	547, 555
K05	543
K07	589
K09	583, 584
K11	561
K12 - Coronation Island, Warren Island, Maurelle Islands Wilderness	564, 565
K13a - Outside Islands Legislated LUD II	567-569

K14	595, 629, 630
K16 - Karta River Wilderness	606-608
K17	610
K18	618, 674, 675
K19	614, 616, 617, 676
K20	634-637
K21	631, 632, 665, 669, 670, 672, 673.2, 685, 688
K22	638-642, 645, 649, 650, 652, 654, 657, 658
K24	677-679, 681
K25	682, 683, 691-693
K27 - South Prince of Wales Wilderness	707
K28	694, 695, 699, 700
K30	715-717, 719, 722
K31	724-729, 731
K32	732-739, 744
K33 - Naha Legislated LUD II	742
K34	745
K35	746
K38	751
K39	743, 747, 748
K41	765
K43 - Misty Fiords National Monument/Wilderness	730, 754, 770-777, 779-783, 790-793, 799-803, 808-810, 815, 817-825, 827-831, 833, 834, 836-838, 840-843, 855, 857-859, 861-863
K44	804
K45	805, 807

Appendix F

Visual Priority Routes and Use Areas

Appendix F
Visual Priority Routes and Use Areas

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Ketchikan Area	
Thorne Bay Ranger District	30
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Note: Admiralty and Misty Fiords National Monuments are also administrative areas on the Tongass National Forest. They both have an adopted visual quality objective of Retention (activities not to be visually evident to the casual observer) throughout the area within the boundaries of the National Monument and, therefore, a visual priority listing would be of no particular value.

APPENDIX F

VISUAL PRIORITY ROUTES AND USE AREAS

Introduction

Many people commented on the Supplement to the DEIS saying they were confused over the forest-wide and management prescription standards and guidelines for scenery (visual resource). To reduce the confusion, this appendix has been created to describe the viewpoints from which scenic quality will be managed.

The following appendix provides travel routes and use areas by each of the Ranger Districts on each of the three Administrative Areas: Chatham, Stikine, and Ketchikan. The National Monuments and Wilderness Areas are not listed because they have an adopted visual quality objective of Retention that applies throughout the area within the boundaries. For the Ranger Districts, the travel routes are separated into several categories: Alaska Marine Highway, Tour Ship Routes, Roads, and Hiking Trails. Use areas are categorized into: State Marine Parks, Recommended Wild, Scenic, and Recreational Rivers, Saltwater Use Areas, Dispersed Recreation Areas, Communities, Forest Service Cabins, Developed Recreation Sites, and Boat Anchorages.

Each listed route or use area is also mapped as part of the TLMP Revision planning records. The mapped routes and use areas are the viewpoints used to assess the existing visual condition of any given project area and to develop project designs that will be consistent with the adopted visual quality objectives for each land use designation (see Visual Forest-wide Standards and Guidelines for a listing of adopted visual quality objectives for foreground, middleground, and background views by land use designation).

The adopted visual quality objectives and the following list provide some of the tools needed to institute the design art of landscape architecture in project design. The VQOs and this list also help convey to the interested public how scenery will be considered in project design for any given area on the Forest.

STIKINE AREA
Petersburg Ranger District

Travel Routes

Alaska Marine Highway

Wrangell Narrows
Frederick Sound from LeConte Bay to
Chatham Strait

Other Marine Travel Routes

Dry Strait
Decision Passage
Affleck Canal

Tour Ship Routes

Sumner Strait between Wrangell
and Cape Decision
Wrangell Narrows
Frederick Sound from LeConte Bay
to Chatham Strait

Chatham Strait from Cape
Decision to Frederick Sound
Keku Strait from Frederick
Sound to Big John Bay

Public Use Roads

Mitkof Island:

Mitkof State Highway: Petersburg to
Blaquiere Point
Rd 6246-40006: Snake Ridge
Rd 6245: Woodpecker Cove
Rd 6235: Three Lakes Loop
Rd 6241: Dry Strait
Rd 6230 & 40000: Froot Loop
Rd 6209: Twin Creek
Rd 6204: Cabin Creek

Kupreanof Island:

Rd 6040 & 6000: Kake to
Little Hamilton Island
Rd 6030: Cathedral Falls to
Goose Marsh Lake
Rd 6314: Hamilton Creek to
1 mile past creek
crossing.

State Marine Parks

Security Bay
Ernie Haugen Public Use Area

Beecher Pass

Recommended Wild, Scenic and Recreational Rivers

Blind River
Fall Dog Creek
Kah Sheets Creek and Lake

Farragut River
Kadake Creek
Petersburg Creek

Small Boat Routes

Beecher Pass
Whiskey Pass
Keku Strait
Duncan Canal to Salt Chuck

Towers Arm
McDonald Arm
Rocky Pass (from Beacon Island
south to Meadow Island)

Saltwater Use Areas

Thomas Bay
Port Camden
Scenery Cove
Kadake Bay
Kah Sheets Bay
Sukoi Islets
Point Vandeput east to Thomas Bay
Hamilton Bay
Port Malmesbury
Port Beauclearc
Head of Affleck Canal north of
 Bear Harbor
Little Duncan Bay
Bock Bight
Duncan Canal to Indian Point
Frederick Sound
Blind Slough, Mitkof Island
Tebenkof Bay
Totem Bay east to Mitchell Point

Farragut Bay (North & South
 Arms)
Rowan Bay
Security Bay
Saginaw Bay
Washington Bay
Bay of Pillars
Ideal Cove
No Name Bay
Pt. Barrie to Totem Bay
Seclusion Harbor
Douglas Bay
Reid Bay
Alvin Bay
Three Mile Arm
Kell Bay
Port McArthur
Bear Harbor
Portage Bay

Dispersed Recreation Areas

Tebenkof Bay
Petersburg Creek
Hamilton Creek (from Cathedral Falls
 to 2 miles inland)
Kadake Creek
Agate Beach, west of Totem Bay
Dry Bay
Goose Marsh Lake (Kupreanof Island)
Farragut River to Section 21
Kah Sheets Lake
Swan Lake
Petersburg Lake
DeBoer Lake

Spurt Point Lake
Crystal Lake and Mountain
Scenery Lake
Kutlaku Lake
Alecks Lake
Hatchery Lake
Scenery Creek to Scenery Lake
Hamilton Creek
Stanton Lake
Agate Beach, west of Totem Bay
Colp Lake
Glory Lake
Farragut Lake

Communities

Petersburg
Kupreanof

Rowan Bay
Kake

Forest Service Cabins

Beecher Pass
Big John Bay
Breiland Slough
Cascade Creek
Castle Flats
Castle River
DeBoer Lake
Harvey Lake
Indian Point
Kadake Bay
Kah Sheets Bay

Towers Arm
Towers Lake
Devil's Elbow
Swan Lake
Spurt Cove
Salt Chuck East
Ravens Roost
Portage Bay
Petersburg Lake
Kah Sheets Lake
West Point

Developed Recreation Sites

Mitkof Island Sites:

Blind Slough Complex:
 Blind Slough Swan Observatory
 Ohmer Creek Campground
 Blind Slough Picnic Area
 Man Made Hole Picnic Area
Three Lakes Picnic Area, Shelter
 and Loop Trail

LeConte Overlook Picnic Area
 adjacent to Road #6235
Snake Ridge Picnic Area
 adjacent to Road #4006
Twin Creek Shelter
Bay of Pillars Shelter

Hiking Trails

Mitkof Island:

Ideal Cove Trail (#508)
Bear Creek Trail
Blind River Rapids Trail (#454)
Raven Trail (#607)

Three Lakes Loop Trails
 (#600-602)
Ohmer Creek Trail (#603)

Kupreanof Island:

Kahsheets Lake Trail (#503)
Goose Lake Trail (#462)
Petersburg Lake Trail (#534)
Petersburg Mountain Trail (#585&586)
Castle River Trail (#459)
Petersburg Lk Trail to Portage Bay &
 to Duncan Salt Chuck Trails (#534 & 469)

Colp Lake Trail (#461)
Hamilton Creek Trail (#463)
Cathedral Falls Trail (#467)
Big John Bay Trail (#465)
Hooter Trail (#445)

Other Locations on the District:

Harvey Lake Trail (#488)
Kuiu Island Canoe/Kayak Portages

Spurt Lake Trail (#457)
Cascade Creek Trail (#458)
and Falls Lake Shelter

Boat Anchorages

Portage Bay
Thomas Bay
Spurt Cove
Alexander Bay

Cape Fanshaw: Whitney Island
area
Bay of Pillars

Routes not constructed nor NEPA cleared: Planned or Opportunities

Kake to Petersburg Road (FH #40)

Cabin Creek to Petersburg
Road (#6204)

STIKINE AREA
Wrangell Ranger District

Travel Routes

**Alaska Marine Highway & Tour Ship
Routes**

Clarence Strait
Stikine Strait
Chichagof Pass
Sumner Strait between Wrangell
and Cape Decision
Snow Passage
Blake Channel
Zimovia Strait
Eastern Passage
Ernest Sound
Frederick Sound from LeConte Bay
to Chatham Strait

Other Travel Routes

Kashevarof Passage
Bradfield Canal
Dry Strait
Canoe Passage
Seward Passage
Chatham Strait from Cape
Decision to Frederick
Sound
Mosman Inlet
Burnett Inlet
Snow Pass to Macnamara Pt.
to St. John's Harbor (NW
Zarembo)

Public Use Roads

Wrangell Island Road System:

Zimovia Highway: Wrangell to Pat's Creek Bridge (FH#16)
McCormick Creek to Earl West Cove (#6265)
Thoms Lake Access (#6290)
Fools Inlet (#6271)
Thoms Creek Crossing (#6299)
Long Lake Access (#6271)
Big Hallow (#50060)
Salamander Rd. to Recreation Sites (#50050)

State Marine Parks

Thoms Place
Thoms Place Homeowner's Association

Recommended Wild, Scenic and Recreational Rivers

Aaron, Oerns, Berg Creeks	Anan Creek
Eagle River and Lake	LeConte Glacier
Santa Anna Creek and Lake	Virginia Creek and Lake

Saltwater Use Areas

Anan Bay
Berg Bay/Aaron Creek
Kashevaroff Island Group
McHenry Inlet
Steamer Bay
Santa Anna/Lake Helen
Harding River
Cannery Cove
Eagle Bay/River
Thoms Place
Kindergarten Bay
Quiet Harbor
Stone Harbor
Frosty Bay
Earl West Cove
Paradise Cove, Woronofski Is.

Anita Bay
Fools Inlet
Menefee Inlet
Whaletail Cove
Johnson Cove
Snow Pass to Macnamara Point
to St. John's Harbor (NW
Zarembo)
King George
Olive Cove
Burnett Inlet
Fisherman Chuck
South Brownson Island
Sunny Bay
Turn Island

Dispersed Recreation Areas

Hatchery Lake
Marten Lake
Viginia Lake
Goat Lake
Anan Lake

Tyee Lake
Shakes Lake
Eagle Lakee
Boulder Lake

Communities

Wrangell

Forest Service Cabins

Anan Bay
Berg Bay
Binkley Slough
Eagle Lake
Garnet Ledge
Gut Island #1 & #2
Harding River
Koknuk Flats
Little Dry Island
Frosty Bay

Virginia Lake
Twin Lakes
Steamer Bay
Shakes Slough #1 and #2
Sergief Island
Mount Rynda
Mount Flemer
Marten Lake
Mallard Slough

Developed Recreation Sites

Thoms Creek Picnic Area
Earl West Picnic Area
Salamander Creek Picnic Area
Lower Salamander Creek Picnic Area
Anan Bay Complex: Bear Observatory,
and Cabin
Rainbow Falls Viewing Platforms
Salamander Ridge Recreation Parking
Site

Kunk Lake Shelter
Long Lake Shelter
Fools Pass Recreation Parking
Highbush Lake Day Use Site
Chief Shakes Hot Springs
Institute Creek/Shoemaker
Overlook Shelter Site
Nemo Camp Sites
Twin Lakes Picnic Site

Hiking Trails

Kunk Lake Trail (#506)
Long Lake Trail (#574)
Highbush Lake Trail (#572)
Mill Creek Trail (#515)

Salamander Ridge Trail (#520)

Anan Bay Trail (#448 & #557)
Rainbow Falls Trail (#536)
Institute Creek Trail (#537)
Aaron Creek/Berg Bay Trail
(#527)
Mallard Slough Trail (#626)

Boat Anchorages

Anan Bay
Thoms Place
Berg Bay
Quiet Harbor
Kindergarten Bay
Stone Harbor
Cannery Cove
Anan Bay
McHenry Inlet
Steamer Bay
Kashevaroff Island Group
Fisherman Chuck

N. Canoe Passage
S. Brownson Island
Fisherman Chuck
Frosty Bay
Sunny Bay
S. Deer Island
Johnson Cove
Bushy Island
Roosevelt Harbor
Fools Inlet
Anita Bay
St. John's Harbor, Zarembo
Island

Routes not constructed nor NEPA cleared: Planned or Opportunity

Wrangell Island: Nemo Point Loop Connection Road
Bradfield Canal State Transportation Corridor to Canada

CHATHAM AREA
Juneau Ranger District

Travel Routes

Alaska Marine Highway

Skagway to Juneau via Taiya Inlet, Chilkoot Inlet, Lynn Canal,
Favorite Channel, and Auke Bay.

Juneau to Hoonah via Auke Bay, Stephens Passage, Saginaw Channel,
Lynn Canal, and Icy Strait.

Juneau south via Auke Bay, Stephens Passage, and Frederick Sound.

Tourship Routes

Juneau via Stephens Passage and Gastineau Channel.

Juneau to Tracy Arm via Stephens Passage, Holkham Bay, & Tracy Arm.

Juneau to Glacier Bay via Lynn Canal and Icy Strait

Juneau to Skagway/Haines via Lynn Canal

Public Use Roads

Montana Creek Road (#8452)

Mendenhall Glacier Road (FH#37)

Peterson Creek (#8442)

Glacier Highway (FH#2)

Whitepass/Yukon Railroad

North Douglas Road (FH#31 &
#8467)

Fish Creek Road (#8471)

State Marine Parks

Chilkat Island

Sullivan Island

St. James Bay

Taku Harbor

Funter Bay

Oliver Inlet (Adm.NM)

Shelter Island

Recommended Wild, Scenic and Recreational Rivers

Katzehin River

Small Boat Routes

Stephens Passage including

Taku Inlet
Gastineau Channel
Taku Harbor
Slocum Inlet
Hilda Creek (S. Douglas Island)
Admiralty Cove
Fritz Cove
Auke Bay
Favorite Channel
Lena Cove
Saginaw Channel
Russian Cove (Robert Island)
Holkham Bay
Windham Bay
Twin Point
Limestone Inlet

Stephens Passage including

Port Houghton
Hobart Bay
Port Snettisham
Port Houghton Salt Chuck
Sandborn Canal

Lynn Canal including

Barlow Cove
Saginaw Channel
North Pass
Howard Point
St. James Bay
Boat Harbor
William Henry Bay
Berners Bay
Tee Harbor
Rescue Harbor
Berners Bay
West Lynn Canal

Chatham Strait including

Hawk Inlet
Funter Bay

Icy Strait including

North Ansley Island
Couverden Island

Taku River and Inlet including

Turner Creek
Hole in the Wall Glacier
Twin Glacier Lake
Yehring Creek
Wright River

Icy Strait including

Excursion Inlet
Sawmill Bay

Berners Bay including

Berners River
Lace River
Antler River
Gilkey River

Tracy Arm including

Holkham Bay
Williams Cove
Endicott Arm

Endicott Arm including

Fords Terror

Port Snettisham including

Gilbert Bay
Whiting Inlet
Whiting River

Saltwater Use Areas

Stephens Passage (Douglas Island) between Dornin Rock and Bishop Point, including Gastineau Channel.
Couverden Island and surrounding waters from No Use Ledge to Point Howard.
Shelter Island (Saginaw Channel)
Barlow Island (Saginaw Channel)
Mansfield Peninsula, West Shore between Point Retreat and the Kittens.
Favorite Channel (Breadline) from Pearl Harbor to Tee Harbor
Lynn Canal from Mount Golub to Tidal Flats south of St. James Point
Berners Bay
Homeshore (Icy Strait) 4 miles in length along shoreline near the Couverden Log Transfer Facility
Sandborn Canal

Dispersed Recreation Areas

Symonds Point (Saginaw Channel)
Mansfield Peninsula, East Shore
Lone Mountain to Young Bay
Couverden Island and Mainland
No Use Ledge to Point Howard
Spaulding Meadows Alpine Recreation Area
Katzechin River
Barlow Cove (Saginaw Channel)
Funter Bay (Lynn Canal)
Portland Island (Stephens Pass.)
Benjamin Island (Favorite Island)
Echo Cove/Sawmill Cove (Berners Bay)
Speel River
Groundhog Bay Historic Native Village Site
Berners Bay Head Water System
(Lace, Antler, Gilkey Rivers)

St. James Bay
Laughton Glacier
Wright River
Taku River
Sumdum Mine Site
Chuck River (Windham Bay)
Endicott Arm Native Village Site
Turner Creek and Lake
Fish Creek Recreation Area
Shelter Island from
Halibut Cove to Shelter Cove
Sullivan Island Fox Farm
Salt Chuck River (2 locations)
Gilbert Creek/Sweetheart Flats
Whiting River

Communities

Taku Harbor
Juneau
Haines
Hobart Bay

Douglas
Skagway
Excursion Inlet

Forest Service Recreation Cabins

Peterson Lake
John Muir
Eagle Glacier
Dan Moller
Berners Bay

Laughton Glacier
Wright River (Spruce Camp)
Turner Lake West
Turner Lake East
White Pass Caboose

Private or Public Resorts

Eaglecrest Ski Area
Taku Lodge
Eagle Valley Lodge

Methodist Camp
Scout Camp

Developed Recreation Areas

Mendenhall Recreation Area
Mendenhall Campground
Auke Bay Recreation Area
Lena Cove Picnic Area

Eagle Beach Picnic Area
Portland Island Picnic Area
Auke Village Campground

Hiking Trails

Bishop Trail (#554)
Salmon Creek
Sheep Creek
Montana Creek (#511)
West Glacier (#513)
East Glacier (#526)
Lake Creek
Spaulding Trail (#547)
Nugget Creek (#525)
Auke Nu (#680)
Photo Point
Mount Juneau
Sumdum Glacier
Lake Dorothy
Bessie Creek (#565)

Lemon Creek (#525)
Blackerby Ridge
Dan Moller Trail (#518)
Peterson Lake (#535)
Amalga Trail (#447)
Laughton Glacier (#509)
Herbert Glacier (#480)
Windfall Lake (#494)
Denver Glacier (#465)
Morraine Ecology (#543)
Yankee Basin
Mount Roberts
Mount Bradley
Hawk Inlet (#491)

Boat Anchorages

Taku Harbor (Stephens Passage)
Slocum Inlet (Stephens Passage)
Hilda Creek (South Douglas Island)
Sandborn Canal (Port Houghton)
Hawk Inlet Cannery (Hawk Inlet)
Gastineau Channel
Young Bay (Stephens Passage)
Tee Harbor
Ansley Island (Icy Strait)
Couverden Island (Icy Strait)
Fritz Cove
Lincoln Anchorage (Favorite Channel)
Amalga Harbor (Favorite Channel)
Tracy Arm
Endicott Arm (Native Village)
No Name Cove (Tracy Arm)
East End Endicott Arm
Limestone Inlet (Stephens Passage)
Auke Bay (Stephens Passage)
Rescue Harbor (Sullivan Island)
Slate Creek Bay (Berners Bay)
Sullivan Mountain Cove (Chilkat Pen.)
Star Point (Port Snettisham)

Lena Cove (Favorite Channel)
Barlow Cove (Saginaw Channel)
Horse Island (Stephens Pass.)
North Arm (Port Houghton)
Bridget Cove
Funter Bay (Chatham Strait)
Benjamin Island
Echo Cove (Favorite Channel)
William Henry Bay (Lynn Canal)
Boat Harbor (Lynn Canal)
St. James Bay (3 locations)
Entrance Island (Hobart Bay)
North Arm Hobart Bay
Russian Cove (Stephens Pass.)
West and East Arm Fords Terror
Holkham Bay (2 locations)
Sanford Cove (Endicott Arm)
Windham Bay (2 locations)
Hawk Inlet (2 locations,
Hobart Bay
Gilbert Bay (Port Snettisham)
Mallard Cove (Port Snettisham)
West of Sullivan Island (Lynn
Canal)

**CHATHAM AREA
Sitka Ranger District**

Travel Routes

Alaska Marine Highway

Angoon to Sitka via Peril Strait, Neva Strait, Olga Strait, Sitka Sound, and Starrigaven.

Angoon to Tenakee Springs via Chatham Strait and Tenakee Inlet.

Sitka to Petersburg via Starrigaven, Peril Strait, Chatham Strait and Frederick Sound.

Tourship Routes

Sitka to Pacific Ocean via Eastern Channel and Sitka Sound to the Pacific Ocean.

From Sitka southbound: along West Coast of Baranof Island.

From Sitka northbound: along West Coast of Kruzof and Chichagof Islands.

Sitka via Peril Strait, Chatham Strait, to Coronation Island.

Public Use Roads

Harbor Mountain Road (#7576)

Halibut Pt. Road (FH#11)

Sawmill Creek Road (FH #11)

Kruzof Island Roads (#7590)

Corner Creek Road (#7540)

State Marine Parks

Big Bear/Baby Bear Bays

Magoun Islands

Recommended Wild, Scenic and Recreational Rivers

Kadashan River

Lisianski River

Glacial River

Small Boat Routes

Whale Bay including

- Great Arm
- Port Banks
- Small Arm
- Still Harbor

Walker Channel to

- Crawfish Inlet
- DeGroff Bay

Sitka Sound to:

- Biorka Channel
- Redoubt Bay
- Kanga Bay
- Hot Springs Bay

St. John Baptist Bay

Crawfish Inlet to

- Cedar Pass
- Ushk Bay

Big Bay to

- West Crawfish Inlet
- Suloia Bay

West Crawfish Inlet to

- Shamrock Bay

Redoubt Bay to

- Redoubt Lake

Eastern Channel to:

- Deep Inlet
- Silver Bay
- Camp Coogan Bay
- Sitka Harbor
- Kalinin Bay

Chatham Strait to:

- Red Bluff Bay
- Warm Springs Bay
- Cosmos Bay

Sitka Ferry Terminal to

- Katlai Bay

Nakwasina Strait/Passage

Olga Strait

Hoonah Sound, North Arm

Hoonah Sound, South Arm

Surveyor Passage to:

- Black Bay
- Kimshan Cove

Peril Strait to Chatham Strait

Port Alexander to

- Puffin Bay

Sitka Harbor to Vitskari

Sitka Point to Hayward Strait

Necker Bay to

- Secluded Bay
- Dorothy Cove

Hayward Strait to

- Peril Strait

Kamenoi Point to Eastern Point

Pacific Ocean to:

- Piehle Passage
- Khaz Bay
- Imperial Passage

Sukoi Inlet

Portlock Harbor

Peril Strait to

- Bear Bay
- Deep Bay
- Hanus Bay
- Fish Bay

Tenakee Inlet

Hoonah Sound, South Arm to

- Patterson Bay

Neva Strait to

- Salisbury Sound

Tawak Passage

Salisbury Sound to:

- Peril Strait
- Fortuna Strait
- West Chichagof Island
- Sukoi Inlet

Slocum Arm to:

- Waterfall Cove
- Ford Arm

Snipe Bay

Khaz Bay to:

- Slocum Arm
- Klag Bay
- Sister Bay
- Ogden Passage

Lisianski Strait to Stag Bay

Redfish Bay

Port Walter

Small Boat Routes (continued)

Peril Strait to:

Sitkoh Bay
Lindenberg Harbor
Saook Bay
Appleton Cove
Rodman Bay

Chatham Strait to:

The Basin
Middle Arm (Kelp Bay)
Deep Cove
Echo Cove
Portage Arm (Kelp Bay)

Port Armstrong

Sitka Harbor

Sitka Point to:

Shelikof Bay
Gilmer Bay
Salisbury Sound

Tenakee Inlet to:

Corner Bay

Kadashan Bay

Crab Bay

Seal Bay

Long Bay

Southeast Kruzof Island

Saltwater Use Areas

Silver Bay

Necker Islands to Eastern Channel,
including W. coast Baranof Island

Port Walter (Chatham Strait)

Redfish Bay (Pacific Ocean)

Big Port Walter (Chatham Strait)

Nakwasina Sound and Inlet

Rodman Bay (Peril Strait)

Krestof Island, South shore from

Brady Is. to Eastern Point

Salisbury Sound; Searock to Sinitin

Deadman's Reach (Peril Strait)

Olga Strait

Katlian Bay

Sitka Sound

Kelp Bay to Portage Arm

Florence Bay (Peril Strait)

Point Amelia to Sea Lion Is.

Peril Strait, from Kakul

Narrows to Poison Cove

Sitka Point to Beaver Point

Fish Bay

Rodman Bay (Peril Strait)

Dispersed Recreation Areas

Redoubt Lake

Salmon Lake

Baranof Lake

Blue Lake

Magoun Islands

Kruzof Island, East shore from

Magoun Islands to Sitka Point

Hidden Falls Hatchery and

Archeology Site

Sealion Cove

Fish Bay Creek

Harbor Mtn. Recreation Area

Mount Edgecumbe

Lake Eva

Sitkoh Creek

Kook Lake

Iris Meadows

Kadashan Bay

Seal Bay (Tenakee Inlet)

Long Bay (Tenakee Inlet)

Tenakee Inlet S. Tidal Flats

Port Frederick Portage

Communities

Port Alexander
Tenakee Springs

Sitka
Corner Bay Logging Camp

Forest Service Recreation Cabins

Freds Creek
Plotnikof Lake
Davidof Lake
Avoss Lake
Redoubt Lake
Samsing Cove
Baranof Lake
Brent's Beach
Salmon Lake

Shelikof
Lake Eva
Lake Suloia
Kook Lake
Sitkoh Lake (2 cabins)
Goulding Lake
White Sulphur Hot Springs
Seven Fathom Bay
Moser Island

Developed Recreation Sites

Starrigavan Campground

Sawmill Creek Campground

Hiking Trails

Mount Edgecumbe (#520)
Davidof Lake (#463)
Salmon Lake (#566)
Redoubt Lake/Goddard
Warm Springs Bay (#559)
Beaver Lake (#522)
Indian River (#500)
Mount Verstovia (State)
White Sulphur Springs (#560)
Sashin Lake (#668)
Port Banks (#580)

Harbor Mountain (#499)
Iris Meadows (#521)
Lake Eva (#472)
Suloia Lake (#575)
Sealion Cove (#508)
Basket Bay (#451)
Sitkoh Lake (#553)
Tenakee Trail (#553)
Gavan Hill (#487)
Sealion Cove #508)
Dry Pass (#672)

Boat Anchorages

Ship Cove (Port Alexander)	Whitestone Cove (Neva Strait)
Port Banks (Whale Bay)	Cedar Cove (Katlian Bay)
Great Arm (Whale Bay)	St. Lazaria Island
Small Arm (Whale Bay)	Dead Tree Island (Hanus Bay)
Yamani Cove (Necker Bay)	Point Moses (Hanus Bay)
Dorothy Cove (Neckar Bay)	Kalinin Bay (Salisbury Bay)
Still Harbor (Whale Bay)	Leo Anchorage (Fortuna Strait)
Big Bay (Windy Passage)	Hidden Cove (Slocum Arm)
Seven Fathom Bay (Windy Passage)	Island Cove (Slocum Arm)
President Bay (Windy Passage)	Deep Bay (Peril Strait)
Shamrock Bay (W. Crawfish Inlet)	Suloia Bay (Peril Strait)
Red Bluff Bay (Chatham Strait)	Schulze Cove (Fish Bay)
Tava Island (Biorka Channel)	Baby Bear Bay (Peril Strait)
Herring Bay (Elovot Island)	Ushk Bay (Peril Strait)
Kliuchsvoi Bay (Goddard)	Waterfall Cove (Slocum Arm)
Three Entrance Bay (Sitka Sound)	Ford Arm
Samsing Cove (Eastern Channel)	Moser Island
Warm Springs Bay (Baranof Island)	Black Bay (Surveyor Passage)
Cosmos Cove (Hidden Falls)	Kimshan Cove
Leesoffskaia Bay (Eastern Channel)	Klag Bay (Chichagof)
Crescent Bay (Eastern Channel)	Double Cove (Slocum Arm)
Katlian Bay	Tawak Passage (Ogden Passage)
Port Krestof (Hayward Strait)	Khaz Bay
Mud Bay (Krestof Sound)	Piehle Passage
DeGross Bay (Krestof Sound)	Symonds Bay (Biorka Island)
Appleton Cove (Peril Strait)	Tenakee Inlet, North Extent
Little Port Walter (Chatham Strait)	Cuvacan Cove (Shelikof Bay)
Puffin Bay (Pacific Ocean)	The Basin (Kelp Bay)
Ten Fathom Anchorage (Redfish Bay)	Pond Island (Kelp Bay)
Redfish Bay (Pacific Ocean)	Echo Bay (Chatham Strait)
Snipe Bay (Pacific Ocean)	Lindenberg Harbor (Peril St.)
Port Armstrong (Chatham Strait)	Saook Bay (Peril Strait)
Deep Cove (Chatham Strait)	Goleta Cove (Shelikof Bay)
Ell Cove (Chatham Strait)	Corner Bay (Tenakee Inlet)
Kasnyku Bay (Chatham Strait)	Crab Bay (Tenakee Inlet)
Takatz Bay (Chatham Strait)	Seal Cove (Tenakee Inlet)
Gilmer Bay (Pacific Ocean)	Long Bay (Tenakee Inlet)

National Wildlife Refuge

St. Lazaria National Wildlife Refuge

CHATHAM AREA
Yakutat Ranger District

Public Use Roads

Highway 10 (Yakutat to Dangerous R.)
Cannon Beach Road (#9963)

Situk Landing Road (#9969)
Alsek Bay/River Non System Rd.

Recommended Wild, Scenic and Recreational Rivers

Dangerous River

Small Boat Routes

Alsek River
East Alsek River
Ahrnklin River
Mouth of Dangerous R. to Harlequin L.
Ankau Saltchucks to Summit Lake
Yakutat Bay to Disenchantment Bay
Mouth of Situk River to Situk Lake
Mouth of Russell Fiord to Nunatak
Fiord

Italio River
Tawah Creek
Shipyard Cove to:
Gilbert Spite to:
Eleanor Cove
Akwe River
Situk Lake to Russell Fiord
canoe/kayak route

Saltwater Use Areas

Phipps Peninsula

Dispersed Recreation Areas

Square Lake
Gines Creek
Alsek River Delta
East Alsek River Delta
Harlequin Lake
Alsek River Big Game and Fish Camps
Doame River
Alsek Bay Fish Camps and Buying Sta.
Pike Lakes
Tanis River Mesa Guide Camp
Italio Lake Big Game Camp

Italio River
Lower Dangerous River
Ahrnklin River
Cannon Beach
Middle Slough River
Dangerous River
Ahrnklin River
Dangerous River Guide Camp
Highway 10 Corridor
Gulf of Alaska Coastline

Communities

Yakutat

Forest Service Recreation Cabins

Square Lake

Tanis Mesa (2 cabins)

Alsek River

Harlequin Lake (2 cabins)

Middle Situk (2 cabins)

Middle Dangerous River

Lower Dangerous River

Italio River

Situk Weir

Situk Lake

Private Resorts

Alsek River Rafting Campsite

Hiking Trails

Dangerous River (#654)

Italio River (ATV)

Lower Dangerous River (#653)

West Situk (#664)

Lost River Trail (#670)

Situk River Cabin (#649)

Situk Lake (#659)

Mountain Lake (#652)

Harlequin Lake Trail (#655)

Boat Anchorages

Eleanor Cove

**CHATHAM AREA:
Hoonah Ranger District**

Travel Routes

Alaska Marine Highway and Tour Ship Routes

Juneau to Sitka via Hoonah via Icy Strait, Port Frederick.

Hoonah to Pelican via Icy Strait, South Passage, South Inian Passage, and Lisianski Inlet.

Juneau to Sitka via Icy Strait, North Passage, Cross Sound, West Coast Chichagof Island to Sitka Sound.

Public Use Roads

Hoonah to East Point (#8502, #8508, #8510, and #8513)

Hoonah to Whitestone Harbor & Iyoukeen Cove (#8502, #8530, and #8530-4)

Small Boat Routes

Icy Strait including

Whitestone Harbor

Spasski Bay

Frederick Sound

South Passage

North Passage

South Passage including:

Elfin Cove

Port Althorp

Cross Sound

Cross Sound including:

Lisianski Inlet

Soapstone Cove

Bingham Peak Cove
to the Pacific Ocean

Port Frederick to:

Halibut Creek

Neka Bay

The Narrows

Tenakee Inlet

Pacific Ocean including:

Surge Bay

Takanis Bay

Squid Bay

Green Top Harbor

Lisianski Strait

Lisianski Strait including:

Stag Bay

Lisianski Inlet

Chatham Strait to Pavlof

Harbor via Freshwater Bay

All of Icy Strait including:

Mud Bay

Icy Passage

Idaho Inlet

Flynn Cove (Icy Strait)

Hoonah to Tenakee via Portage

Freshwater Bay

Cedar Cove to Freshwater Creek

Saltwater Use Areas

Pleasant Island (Icy Strait)

Pulizzi Bay (Icy Strait)

False Bay (Chatham Strait)

Neka Bay (Port Frederick)

Dispersed Recreation Areas

Port Althorp
Georges Island
Bear Paw Lake
Game Creek
Halibut Creek
Neka River
Mud Bay River
Humpback Creek
Trail River

Pavlof Lake
Lisianski River
Old Soapstone Mine Site
Pavlof River Canoe Route
Sonyakay Ridge
Limestone Mountain
Suntaheen Fish Viewing Area
Port Frederick/Tenakee Inlet
Portage

Communities

Hoonah
Pelican
Kennel Creek Logging Camp
Mt. Bether

Elfin Cove
Gustavus
Whitestone Logging Camp

Forest Service Recreation Cabins

Green Top

Salt Lake Bay

Hiking Trails

Pelican/Sunnyside (State)
Lisianski River (#506)
Sonyakay Ridge
Limestone Mountain

Pavlof Lake (#531)
Spasski Trail (Pvt.)
Spasski Trail (#548)

Boat Anchorages

Whitestone Harbor (Icy Strait)
Spasski Bay (Icy Strait)
Port Althorp (Cross Sound)
Soapstone Cove (Cross Sound)
Bingham Peak Cove (Cross Sound)
Pavlof Harbor (Freshwater)
Elfin Cove (Port Althorp)
Lisianski Inlet at Lisianski River
Mud Bay (Icy Strait)
Idaho Inlet (South Inian Passage)
Mite Cove (Lisianski Inlet)
Kennel Creek (Freshwater)

Surge Bay
Takanis Bay
Squid Bay
Green Top Harbor
Icy Passage Light Cove
Cedar Cove (Freshwater)
Hoonah Harbor (Port Frederick)
Flynn Cove (Icy Strait)
Neka Bay (Port Frederick)
Gull Cove (Idaho Inlet)
Goose Island

KETCHIKAN AREA
Thorne Bay District

Travel Routes

Alaska Marine Highway

Clarence Strait from Ketchikan to Stikine Strait

Tour Ship Route

Sumner Strait from Snow Passage to Cape Decision

Public Use Roads

Thorne Bay to Sandy Beach Rd. (#30)

Klawock-Control Lake (FH#9)

Control Lake to Thorne Bay

(FH#9)

State Marine Parks

Salmon Bay

Grindall Island

Recommended Wild, Scenic and Recreational Rivers

Salmon Bay Lake and Stream

Sarkar Lakes

Thorne River Hatchery Creek/Barnes Lake

Small Boat Routes

Tuxekan Pass - Edna Bay

Sea Otter Sound to Cape Pole

Tenass & Brockman Passages

Marble Pass

Karheen Pass to New Tokeen

West Coast Waterway: Shakan Bay & Shakan Strait (including Calder Bay) to Dry Pass to El

Capitan Pass to Tenass Pass to Karheen Pass to San Cristoval Channel

Saltwater Use Areas

Port Protection

Tokeen Bay

Thorne Bay to Snug Anchorage

Davidson Inlet

Exchange Cove

Whale Pass

Waters inside Maurelle Island Wilderness

Dispersed Recreation Areas

Salmon Bay

Red Bay

Sarkar Cove

Snakey Lakes

Honker Canoe Route-Gold & Galligan

Eagle Creek

Lagoon to Thorne Bay

Gold & Galligan Lagoon

Mouth of Staney Creek and the cove

Beach Areas on north coast of

to the south

Prince of Wales Island

Staney Creek (from rec. sites to mouth)

Communities

Edna Bay
Whale Pass
Point Baker
Thorne Bay

Coffman Cove
Cape Pole
Naukati
Port Protection

Forest Service Recreation Cabins

Red Lake - incl. lake
Salmon Bay Lake- incl. lake
Sarkar Lake - incl. lake
Staney Creek - incl. estuary
Barnes Lake - incl. lake

Control Lake - incl. lake
Honker Lake - incl. lake
Sweetwater Lake - incl. lake
Shiple Lake - incl. lake

Developed Recreation Areas

Thorne River Bridge Area
Gravelly Creek Picnic Area
Sandy Beach Picnic Area

Staney Creek Campsites
Memorial Beach Picnic Site
Eagles Nest Campground (Balls Lake)

Private Resorts

Whale Pass Resort
Glen Keller's Resort at El Cap Pass

Sarkar Cove Resort
Boardwalk Wilderness Lodge (Thorne Bay)

Hiking Trails

Red Lake Trail (#947720)
Salmon Bay Lake Trail (#947730)
Honker Divide Canoe Trail
Sarkar Canoe Trail

Shiple Lake Trail(#947710)
Deweyville Trail (#947490)
Rio Roberts Trail
El Capitan Cave Trail

Boat Anchorages

Pole Anchorage
Karta Bay
Cyrus Cove
Windfall Harbor
Hole-In-The-Wall (Prince of Wales)

Warm Chuck Inlet
Nossuk Bay
Salt Lake Bay
Salmon Bay

Routes not constructed nor NEPA cleared: Planned or Opportunities

none

KETCHIKAN AREA
Craig Ranger District

Travel Routes

Alaska Marine Highway

Guard Island to Hollis via Kasaan Bay to Clark Bay

Public Use Roads

Craig to Klawock (FH #9)

Klawock to Hydaburg Jct. (FH#6)

Hydaburg Rd. - 12-Mile Arm (#21)

Hydaburg Rd. (FH#13)

Hydaburg Jct. to Hollis (FH#6)

State Marine Parks

Dall Bay

Small Boat Routes

West Coast Waterway: San Cristoval
Channel to Ulloa Channel

West Coast Waterway: Ulloa
Channel to Hydaburg

Saltwater Use Areas

Waters around Craig and Klawock
including San Alberto Bay

Waters around Hydaburg and
south through Sukkwan Strait
12-Mile Arm Campground site &
estuary and head of bay adjacent
to campground site.

About 1 mi. off shore from Skowl
Arm to entrance of Chomly

Moir Sound-All of Niblack Bay
and head of North Arm to Aiken
Cove; Johnson Cove & Lake;
Rest of Moira Sound up to mouth
of West and South Arms

Buccarelli Bay

Portillo Channel

Port Real Marina

Trocadero Bay-near head of bay
in general area where trail
comes in.

West Arm-Cholmondeley Sound:
including Sunny Cove

Port Refugio

Dispersed Recreation Areas

Arena Cove - Cape Felix

Roller Bay

Communities

Craig

Klawock

Hydaburg

Sunny Cove

Saltery Cove

Hollis

Forest Service Recreation Cabins

Black Bear Lake - incl. lake
Kegan Lake - incl. lake
Kegan Cove - incl. cove
Josephine Lake - incl. lake

Trollers Cove - incl. cove
Essowah Lake - incl. lake
Pt. Amargura - incl 1/2 mile
rad. around cabin

Developed Recreation Sites

One Duck Lake Shelter

Private Resorts

Waterfall Resort site and Ulloa Channel north and south of the
resort
Clover Bay Resort

Hiking Trails

One Duck Lake Trail (#9173600)
Trocadero Bay Trail

Soda Bay Trail
Harris River Trail

Boat Anchorages

Steamboat Bay
Kelly Cove
Port San Antonio
Port Santa Cruz
Port Dolores
Bobs Bay
Hole-in-the-Wall (Dall Is.)
Waterfall Bay
Gold Harbor
Port Bazan
Security Cove
Datzkoo Harbor
Kaigani Harbor
Kassa Inlet - area inside islands

Pt. Garcia
Port Asumcion
Port Refugio
Head of McLean Arm
Nichols Bay
Kendrick Bay
Dickman Bay
South Arm Moira Sound (mouth)
West Arm Moira Sound (mouth)
Goose Bay
Rose Inlet
Clover Bay
Mabel Bay
Vesta Bay

Routes not constructed nor NEPA cleared: Planned or Opportunities

One Duck Recreation Site

Harris River Campground

KETCHIKAN AREA
Ketchikan Ranger District & Misty Fjords (outside monument)

Travel Routes

Alaska Marine Highway

Revillagigedo Channel from Main Passage to Clarence Strait
Clarence Strait to Stikine Strait
Alternative Route (Clarence Strait and Ernest Sound)
Main Passage, Tongass Passage and Portland Canal to Hyder

Tour Ship Route - Revillagigedo Channel and Clarence Strait

Public Use Roads

Tongass Highway (State Highway #7)	Salmon River Hwy.-Hyder (#88)
Ward Lake-Hariett Hunt Lake Road (FH #39)	
White River Road	Ward Lake By-Pass Rd.

State Marine Parks

Grant Island

Recommended Wild, Scenic and Recreational Rivers

Naha River

Small Boat Routes

Felice Strait around south end of Annette Island

Saltwater Use Areas

Tongass Narrows	Gedney Pass-also Convenient C.
Nichols Passage - Blank Inlet to	Hassler Pass
Bostwick Inlet	Shrimp Bay
Clover Pass	Klu Bay
Naha Bay	Neets Bay
Vallenar Bay - Vallenar Point	Traitors Cove
Revilla Channel to Thorne Arm	Carroll Inlet
Behm Narrows	Port Stewart
Bell Arm	Union Bay
Bailey Bay	Helm Bay
Short Bay	George Inlet
George Inlet	NE corner of Thorne Arm (Fish
Thorne Arm (except around Fish Creek)	Creek to Gokachin Creek)
West Behm Canal	
About 1/2 mi. off shore Cleveland	Blind Plass
Peninsula from Caamano Point to	Yes Bay
Niblack Point	

Dispersed Recreation Areas

Mountain Ranges & Alpine Area between Ketchikan, Ward Lake-Hariett
Hunt Lake Road, and George Inlet.

Communities

Ketchikan	Hyder
Meyers Chuck	

Forest Service Recreation Cabins

Deer Mountain	Patching Lake - incl. lake
Jordan Lake - incl. lake	Portage Cabin - incl. lake
Heckman Lake - incl. lake	Fisheries Cabin - incl. lake
Blind Pass - incl. pass	Long Lake Shelter - incl. lake
Anchor Pass - incl. pass	Wolf Lake Shelter - incl. lake
Reflection Lake & Shelter-incl.lake	Shelokum Lk. Shelter-area&lake
McDonald Lake & Shelter-incl. lake	Helm Lake- incl. stream & lake
Orchard Lake - incl. lake	Phocena Cove - incl. cove
Plenty Cutthroat - incl. lake	Fish Creek - incl. around buoy
Helm Bay - incl. bay	Rainbow Lake - incl. lake

Private Resorts

Yes Bay Resort	Salmon Falls Resort
Bell Island Resort	

Developed Recreation Areas

Ward Lake Recreation Area	Settlers Cove (State Campground)
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Hiking Trails

Perseverance Lake Trail (#927260)	Wolf Lake Trail (#927440)
Deer Mountain Trail (#927060)	Gokachin Lake Trail (#927110)
Reflection Lake Trail (#927310)	Titan Trail (Hyder) (#957550)
Bell Island Trail (#927030)	Orchard Lake Trail (#927320)
Naha River Trail (#929250)	Meyers Chuck Trail (#927830)
Bailey Bay-Shelokum Lake (#927010)	McDonald Lake Trail (#927450)
Long Lake Trail (#927190)	Fish Creek-Low Lake Trail

Boat Anchorages

Vixen Harbor

Routes not constructed nor NEPA cleared: Planned or Opportunities

Potential Trail corridor between Hariett Hunt Lake & Leask Lake

Appendix G

Log Transfer Facility Guidelines

APPENDIX G

LOG TRANSFER FACILITY GUIDELINES*

Introduction

Log transfer facilities (LTF's) undergo a complex and rigorous permitting process involving four state and four Federal resource management and regulatory agencies as well as comments from other interested parties. Through the permitting process, the regulatory agencies may disapprove or approve permits with stipulations which govern the construction and operation of LTF's.

In seeking clarification of permit stipulations expected to be included in LTF permits, the timber industry recommended--through Governor Sheffield's Timber Task Force report (12/13/84)--that:

"...the principal agency heads and industry representatives meet to agree upon a process which will result in a common set of log transfer facility guidelines..."

As a result of this request, a committee consisting of the principal agency and industry representatives met on April 15, 1985 to consider the Task Force recommendation. This committee created a Technical Subcommittee of industry, public, and resource agency personnel involved in permitting LTF's to develop LTF guidelines per the Timber Task Force recommendation that:

"...it would be beneficial for all parties involved in the permitting, construction, and operation of log transfer facilities to have a common set of criteria (guidelines) from which to work when designing facilities and reviewing permit applications for these facilities."

The LTF guidelines are in three sections.

- Siting
- Construction and Operation
- Monitoring and Reporting

The Use of Guidelines

The guidelines for planning and permitting of LTF's delineate the physical requirements necessary to construct a log transfer and associated facilities and--in context with requirements of applicable law and regulations--methods to avoid or control potential impacts from these facilities on water quality,

* The *Log Transfer Facility Siting, Construction, Operation and Monitoring/Reporting Guidelines* (1985) were developed by the Alaska Timber Task Force (ATTF) Log Transfer Facility Guidelines Technical Subcommittee. These guidelines are to be used when considering alternatives for the location and management of log transfer and associated facilities. The guidelines will also be used by the regulatory agencies for evaluating permit applications to ensure consistency with the Clean Water Act. See the log transfer facilities direction in the Transportation Forest-wide Standards and Guidelines (Chapter 3) for direction in the use of these guidelines.

aquatic, and other resources. The guidelines emphasize facility siting as the best means of limiting most environmental impacts from LTF's, log raft, storage areas, and adjoining collateral facilities. Additional means of limiting environmental impacts occur through application of construction and operating guidelines. Monitoring and reporting guidelines are necessary to determine if a facility is meeting the permit stipulations.

These guidelines can be used in the existing permitting process which emphasizes best professional judgment of the agencies in close cooperation with the applicants when selecting sites and imposing permit stipulations. The process is preferred because it accommodates site-specific conditions and enables all participants to collectively evaluate the practicable alternatives and determine the best way to minimize impacts.

The guidelines are comprehensive and may apply to any site being evaluated for LTF permits. Since each site is different, in unusual circumstances, there may be need to develop more specific stipulations or limitations during the permit review process for a specific site.

Periodic updating of the guidelines will be necessary since changes may occur in both the timber industry and new information may become available on the effects of log transfer facilities on water quality and biotic communities.

The guidelines apply to log transfer, log raft storage, and collateral facilities, such as log raft make-up areas, airplane and boat docks and contiguous upland log storage and sort yards immediately adjacent to the LTF.

The guidelines do not identify which permitting agency(ies) have regulatory and permitting jurisdiction for any guideline. The objective is to provide a comprehensive listing of guidelines applicable to LTF's through state and Federal resource management and regulatory programs.

The siting and construction and operation guidelines identify the physical features the timber industry needs to safely and efficiently transport logs, and minimum requirements that are needed to mitigate for changes in water quality and adverse impacts on aquatic biota. When evaluating proposals for these log transfer and associated facilities, all guidelines must be considered. The objective is to consider all guidelines and develop a "best mix" which allows the activities to proceed while meeting all applicable statutory and regulatory requirements.

The following are the ATTF Guidelines.

Siting Guidelines

Proper siting of log transfer and log raft storage facilities is the single most important means of controlling adverse water quality and biotic impacts from the construction and operation of these facilities. The least biologically productive and sensitive area available which meets industry's physical and economic requirements is the preferred site. The need for regulatory agencies to impose additional permit stipulations above the minimum requirements to mitigate against environmental impacts are reduced to a level commensurate with the site-specific characteristics.

- S1. *Proximity to Rearing and Spawning Areas:* Siting of log transfer and log raft storage facilities within 300 feet of the mouth of anadromous fish streams, or in areas known to be important for fish spawning or rearing is normally prohibited.

Discussion: This LTF siting guideline is derived from the Alaska Forest and Resources Practices Regulations (11 AAC 95.150 (c)). The estuarine areas adjacent to the mouths of anadromous fish streams serve as important feeding areas for salmon fry and smolts while

they acclimate to saltwater. Elimination or impacts to these areas can force outmigrants into deeper waters where there is greater risk for predation. Placement of LTF's in known spawning areas results in loss of spawning habitat.

The outmigrant salmon fry are especially vulnerable and have particularly high value to the fishing industry. The concerns include the possibility of leachates entering fresh water or the possibility of sediments entering waters and affecting fish. Because of the high value of the fisheries resources, the Forest Practices Regulations of the state exclude LTF siting in these most valuable and highest risk locations.

- S2.** *Protected Locations:* Log transfer and log storage facilities should be sited in weather-protected waters with bottoms suitable for anchoring and with at least 20 acres for temporary log storage and log booming.

Discussion: Areas protected from adverse weather, tidal and wave conditions are needed for the safety of the workers responsible for moving log bundles, building rafts, and similar water-oriented work activities. Log rafts and bag booms must be protected from adverse weather, tidal and wave conditions that can damage the rafts and the bag booms.

Protected conditions are needed for control of the log bundles being placed in the water and the requirement to retain them in the bag booms and rafts so as to avoid hazards to navigation.

At least 20 acres of available space is needed to place log bundles into the water, sort bundles into log booms, construct log rafts and hold log rafts until moved by tug to the next destination. Additional space is needed for docks and floats, movement of boats, floatplanes and other transportation. Most of the space involved is used for the movement of vessels and log rafts.

Log bundle storage with maneuvering space for vessels and rafts requires 3.6 + or - acres per MMBF gross timber volume. Approximately 8 acres is required for storage of a typical tow of four log rafts. An additional 8 acres is needed for booming of bundles including maneuvering space.

Consolidation and concurrent use of log transfer and storage sites will increase the amount of space required. Each owner of logs will need separate log booms and storage areas to provide for log accountability. Where National Forest and privately-owned logs are stored or transferred from a consolidated site this separation is required by regulation.

While the guidelines suggest 20 acres for normal situations, it is possible to operate in less space under some situations. For small timber harvest operations, with timber volumes of less than 1 MMBF, the need for space will be reduced dramatically. There is, however, a practical minimum space needed for even the smaller operations. This minimum is approximately five acres.

- S3.** *Upland Facility Requirements:* Log transfer facilities generally should be sited in proximity to at least five acres of relatively flat uplands. There should also be a body of water sufficient to provide a minimum of a 60 lineal foot facility face.

Discussion: This guideline has two operative portions: 1) space needed for upland operations near the transfer point; and 2) the length of available space needed at the operating face.

Relatively flat land is required to avoid extensive excavation. The space needed for upland operations adjacent to the LTF is directly related to the type of facility (see Use Descriptions in the Glossary), volume of timber that may be handled annually and the life of the operation. The amount of space needed may include truck unloading (0.9 acres), log scaling (1.5 acres), log storage (1.6 acres per MMBF), sorting 0.5-2.0 acres) and additional space for incidental related operations. Equipment yard and repair area are commonly in this vicinity (1.5-2.5 acres). The five-acre minimum would service intermittent use and some occasional use sites, with up to 35 to 40 acres needed for continuous use sites.

Unobstructed width required for the transfer of logs to the water needs to be adequate for the products being moved. The constructed length of the working face can be as little as 40 feet under special circumstances, but the operating clearance must exceed 60 feet to accommodate the longest log lengths. 110 feet available face is most desirable.

- S4.** *Safe Access to a Facility from the Uplands:* To provide safe access to the log transfer facility and adjoining log sort yard, the facility should be sited where access roads to the facility can maintain a grade of 10 percent or less and 4 percent for specialized equipment.

Discussion: Vehicle access must be provided to the point where log bundles are transferred either to the log sort yard facility or to the receiving waters. The operating layout must provide for operations within safe limits for the equipment, operators and other personnel in the area. The maximum safe grade for log stackers is 4 percent. The maximum safe grade can be increased to 6 percent with special modifications to the log stacker. Prudent consideration of safety suggests a desirable grade less than the maximum be used.

Road grades entering the unloading facility in excess of the 10 percent will not allow the truck driver to safely stop the vehicle in emergencies.

- S5.** *Bark Dispersal:* Log transfer facilities should be sited along or adjacent to straits and channels or deep bays where currents may be strong enough to disperse sunken or floating wood debris. Siting log transfer facilities in embayments with sills or other natural restrictions to tidal exchange should be avoided.

Discussion: The Environmental Protection Agency and the Alaska Department of Environmental Conservation consider bark to be a pollutant. Problems with bark occur when it accumulates. The accumulated bark both physically smothers organisms and may create anoxic conditions or toxic gases.

In bays that have sills or natural restrictions to tidal exchange, there is a concern that bark may accumulate due to inadequate current velocities. The concern is that sufficient bark accumulation and lack of water exchange in the layer below the sill will cause anoxic conditions. While it is possible for sufficient bark to accumulate below sills to create anoxic conditions, this effect has not been documented at any existing log transfer site in Alaska.

- S6.** *Site Productivity:* Sites for in-water storage and/or transfer of logs should be located in areas having the least productive intertidal and subtidal zones.

Discussion: One of the siting methods used to limit the impacts that log transfer and log storage facilities may have on the environment has been to site the facilities in the least productive habitats. These habitats are often found along steep shorelines, where this is little substrate for plant or animal growth. Bark, because of the steep topography, seldom accumulates in such areas. Areas with a minimum bottom substrate in the euphotic zone are to be preferred.

- S7. *Sensitive Habitats:* Log transfer facilities and log raft storage areas should not be sited on or adjacent to extensive tideflats, salt marshes, kelp or eelgrass beds, seaweed harvest areas or shellfish concentration areas.

Discussion: Tideflats, salt marshes, and aquatic vegetation beds support numerous biological communities, i.e., nursery and rearing areas for commercial species of crab and fish. The areas are usually shallow and high producers of planktonic organisms which support the aquatic food chain.

Woody debris from log transfer and water storage can be carried by currents and deposited on these plant and animal communities. Debris may cover the area and physically smother plants and animals. There is a concern that debris accumulation may reduce dissolved oxygen concentration in the water below the minimum level required by fish and other aquatic life. Bark debris is expected to reduce dissolved oxygen concentration in the bark interstices. One study found that the dissolved oxygen, pH, oxidation reduction potential and concentration of toxic products of decomposition in the water column was 30 centimeters (12 inches) above the bark were not significantly different than at the control sites. Reductions in dissolved oxygen below Water Quality Standards have not been documented.

- S8. *Safe Marine Access to Facilities:* Log rafting and storage facilities should be safely accessible to tugboats with log rafts at most tides and on most winter days.

Discussion: Tugboats gather log rafts for transshipment to mills and other loading facilities. The lack of safe access to log rafting areas will result in the tug operator refusing to accept or deliver log rafts.

- S9. *Storage and Rafting:* Logs, log bundles, or log rafts should be stored in areas where they will not ground at low tide. A minimum depth of 40 feet or deeper measured at Mean Lower Low Water (MLLW) for log raft storage is preferred.

Discussion: Grounding of logs or log rafts compacts the substrate and decreases biota living in and on the substrate. The siting and design of log transfer facilities should provide sufficient water depth to avoid grounding of log bundles at the transfer facility and at log raft make-up areas.

Log rafting in depths greater than 40 feet (MLLW) is preferred because rooted aquatic macrophytes and algae generally begin to decrease in density in Southeast Alaska below this depth. Rafting 40+ feet MLLW or more will protect these organisms and habitat (less than 40 feet MLLW) from bark accumulation and shading by log rafts. Log raft storage may occur at depths less than 40 feet (MLLW) depending on biological productivity, sensitivity to shading and potential risk of bark accumulations.

The logging industry retains the need to maintain existing sites which allow log rafts to ground or be stored in areas with low salinity, typically at the head of the bay, and in water less than 40 feet deep. The purpose is to protect logs from shipworm infestation which can occur immediately after the logs are placed in the water.

Shipworms are an endemic problem because they cause economic loss to timber values, both from the holes they produce in sawtimber, and from the calcium deposits they leave in logs used for pulp purposes. The industry has observed that reductions in shipworms occurs in waters with low salinities and when logs are allowed to ground in cold weather. For this reason, the industry continues to seek the opportunity to have sites where logs will be allowed to ground in order to reduce shipworm damage.

The objective of regulatory agencies is to discontinue the practice of allowing logs to ground or be stored in areas less than 40 feet deep when they are biologically productive or are sensitive habitats.

There is a need for additional research into shipworms and possible ways to reduce infestation in log rafts. Research needs identified by Sedal & Duvall, if accomplished, could reduce the conflicts.

- S10.** *Bald Eagle Nest Trees:* Site log transfer facilities to avoid bald eagle nests. No project construction or operation should be closer than 330 feet to any bald eagle nest tree unless permitted by U.S. Fish and Wildlife Service. (See the Eagle MOU for details.)

Discussion: The Bald Eagle Protection Act (16 U.S.C.) protects bald and golden eagles. To provide guidance for the management and protection of bald eagles on National Forest Lands in Alaska, a Memorandum of Understanding was signed by the U.S. Forest Service (Region 10) and the U.S. Fish and Wildlife Service (Region 7). The Memorandum of Understanding states that a management zone of 5 chains (330 feet) around each eagle nest tree will be established and that all land use activity within the zone will be excluded. The Memorandum of Understanding includes provisions for variances from the requirement.

Construction and Operation Guidelines

The following guidelines apply to the construction and operation of the log transfer facilities and collateral upland facilities such as sort yards and upland log storage areas. Construction and operation guidelines have not been developed for log raft storage facilities since the only practical means of regulating raft storage is through proper siting. The degree of application of these guidelines to individual LTF's as based on the siting of the facility.

- C1.** *Log Transfer Facility Design:* Log transfer facility design should be the least environmentally damaging, practicable alternative. Factors to be considered in selection of design alternatives include: 1) economic practicability; 2) facility requirements; 3) physical site constraints; 4) timber volumes to be transferred (site usage and duration); 5) total potential effects on biota and water quality, (including biological productivity and sensitivity; and 6) other potential uses of the site and facility.

Discussion: The preferred LTF design(s) should be those that represent the best practicable alternative. The best impact from placement of fill and associated impacts, such as bark accumulations. For example, emphasis on facility designs that minimize bark loss may result in a greater total coverage of the intertidal and subtidal areas by fill -- due to design requirements -- than would occur under another alternative which allows greater bark loss, but less fill.

- C2.** *Fill Structures:* Fill structures shall be designed and constructed to prevent erosion, pollution, and structural displacement.

Discussion: The intent is to avoid introducing fine sediments and organic matter into the water. The guideline requires design and construction practices that minimize fine sediment plumes and prevent change in the substrates' composition near the structure as a result of lost fill material.

This guideline is performance-based, by allowing the use of a range of materials within fills provided proper design, construction, and containment procedures are followed. The use of woody debris in fill structures is acceptable with containment.

It is assumed in the guideline that timbers and logs used in construction are not classified as fine organic matter.

- C3. *Timing of Inwater Construction:*** In-water construction, blasting, and/or filling associated with LTF sites should be timed to limit adverse impacts to marine and estuarine fishery resources and avoid conflicts with other user groups.

Discussion: Juvenile salmonids use shallow, near shore areas for feeding during the first few weeks after they leave freshwater. Construction activities during this outmigration period may cause direct mortality from blasting if the over pressure in the marine waters exceeds 2 psi. Increased water column turbidity related to construction or filling may decrease availability of prey organisms and cause physiological damage to fry during this critical period. Spawning herring are also susceptible to turbidity and effects of blasting.

Generally the period from mid-March and mid-June is the period when in-water turbidity and over pressure restrictions will be needed in order to protect juvenile salmon and spawning herring. The actual times will vary depending on site and the presence or absence of juvenile salmon or spawning herring.

Timing restrictions to avoid conflicts with existing user groups vary and would be evaluated on a site-by-site basis. Facility siting to avoid juvenile salmon nursery areas, herring spawning areas and areas utilized by other user groups will reduce the need for timing restrictions.

- C4. *Bark Accumulation Management:*** The siting, design, and operation of the LTF and contiguous collateral upland facilities shall utilize the best practicable procedures and methodologies to control intertidal and submarine accumulations of bark.

Discussion: Intertidal and submarine accumulations of bark impact infauna and epifauna primarily through smothering but also through alteration of natural habitat and water quality. The extent of the impact is limited to the actual area of complete bark coverage. Through proper implementation of best practicable procedures and methodologies, such as siting, design selection, operation, and solid water management, the level and impact of intertidal and submarine accumulations can be minimized. Selection of best practicable procedures and methodologies to limit intertidal and tidal bark accumulations for a specific site should be used.

- C5. *Solid Waste Management:*** Solid wastes, including wood and other solid waste generated from the LTF, contiguous and other collateral facilities shall be routinely removed from the log transfer facilities and adjacent facilities and disposed of at an approved upland solid waste disposal site.

Discussion: Disposal of solid wastes, cable, machine parts, equipment, as well as wastes from logs in the sort yard, truck unloading and log transfer operations should occur in accordance with (18 AAC 60) which requires that solid wastes be properly disposed of at an approved disposal site. In order to prevent accidental introduction of materials into receiving waters, bull rails or similar constraints to retain bark and wood waste on the upland improvements adjacent to the LTF should be utilized. Bark and other solid waste should be periodically removed from uplands and intertidal area around the log transfer system depending on the site conditions.

- C6. *Bark Accumulation:*** The regulatory agency(ies) will impose an interim intertidal and submarine threshold bark accumulation level. When accumulations exceed the threshold level, cleanup -- if any -- will occur at the discretion of the permitting agency(ies). The interim threshold bark

accumulation level is described as 100 percent coverage exceeding 1 acre in size and a thickness greater than 10 cm (3.9 inches) at any point.

Discussion: This guideline is necessary because intertidal and submarine accumulations of bark impact infauna and epifauna primarily through smothering but also through alteration of natural habitat and water quality. The problem with bark occurs when it accumulates. Through siting, transfer system selection, and solid waste management, the amount of bark lost and accumulating in intertidal and submarine areas is prevented to significantly diminished. Bark accumulation is still expected to occur in some areas promoting the need for this guideline. This is an interim guideline developed by the Log Transfer Facility Guideline Committee. The committee developed this procedural guideline in order to be responsive to ongoing research and at the same time raise site-specific problems to the respective decision-makers for appropriate action.

A interim guideline for threshold bark accumulation levels and cleanup when exceeding those levels is being used due to a lack of information. Technical data is needed to evaluate technical feasibility of various options for managing accumulations such as removal or other control procedures. Water quality and biological information is needed to evaluate effects on water quality and biota from removal and disposal of bark accumulations and effects of other corrective options that may be used to manage bark accumulations.

The USDA Forest Service and the USDI U.S. Fish and Wildlife Service have entered into a cooperative agreement to assess the practicability of bark removal. The study was done in 1986 to evaluate bark removal at one site and the level of recolonization that will occur after removal. ADEC is scheduled to conclude studies that will provide information to develop final guidelines for these issues.

The interim guideline will remain in effect pending completion of these studies. Final completion of the recolonization studies did not occur until FY 89-90. There will, however, be interim reports from these studies dealing with cost effectiveness of suction dredge removal techniques, release of toxics into water during bark removal and preliminary evaluations of recolonization. These interim reports will provide sufficient information to develop a final guideline by fall of 1987.

- C7. *Bundle Speed:* The speed of the log bundles entering receiving waters should be the slowest practicable speed available. Decisions on the allowable transfer system that can be used will occur on a site-specific basis during the permitting process.

Discussion: This guideline is necessary because of the amount of bark lost during transfer of log bundles into receiving waters is directly correlated with the speed of log bundles entering receiving waters. These conclusions have been confirmed by an in-progress USFWS study. The loss of bark into receiving and submarine areas which can adversely effect aquatic biota through smothering and alteration of habitat.

The release of bark into receiving waters initiates a regulatory response that bark is a pollutant when discharged into receiving waters. To the extent practicable, its discharge should be eliminated.

This guideline was developed by the Log Transfer Facility Guidelines Committee. The Committee concluded that rather than pursue a uniform speed requirement for all LTF's, the guideline should emphasize the need to meet the slowest speed achievable after taking into consideration costs, existing technology, and logistics in light of the overall project purposes.

There is insufficient information to agree upon a guideline which defines a practicable speed for various types and sizes of transfer operations. However, based on current information about existing transfer technology, a 3 foot per second entry velocity is an achievable entry speed and will serve as a reference point for discussion. Practicable speed requirements for various log transfer operations will be better quantified when the U.S. Fish and Wildlife Service completes its study evaluating the source and amount of bark lost from different log transfer systems operating at different speeds.

- C8. *Surface Drainage Management:*** The design, construction and operation of LTF's, contiguous sort yards and/or log storage yards shall utilize practicable procedures for control of surface water runoff from facilities.

Discussion: The surface water runoff from LTF's and adjacent contiguous sorting/storage areas have been observed to carry sediments, woody debris, and hydrocarbons. These pollutants can directly enter receiving waters. Surface runoff control can be accomplished with a variety of techniques. These include such practices as, keeping overland flow from entering the LTF or adjacent facilities, collecting runoff from the facility in settling basins, or retaining vegetative buffer strips. The design, construction, and operations of LTF's in conjunction with adjacent and contiguous sorting storage areas will utilize practicable procedures for meeting Water Quality Standards for the State of Alaska and the Clean Water Act.

The Alaska Department of Environmental Conservation may require information on sort and/or storage yards contiguous to the LTF that is not routinely provided on permit applications in order to assist permittees in managing surface runoff so as to comply with Water Quality Standards.

- C9. *Control of Hydrocarbons:*** The log transfer system and adjacent sort yard handling equipment shall be operated and maintained to minimize petroleum and lubricating products from entering waters.

Discussion: The operation of certain log transfer systems and equipment used in any adjoining log unloading facility, log and sort yard storage facility are a potential source of hydrocarbons and hydraulic fluids which can spill on the upland facilities and enter receiving waters. This equipment should be maintained and facilities managed to ensure lubricants and hydraulic fluids do not enter receiving waters. Continuous chain log transfer systems require periodic lubrication and result in unavoidable introduction of hydrocarbons into receiving waters. Lubrication of these systems should use manufacturer's specified lubricants and lubrication should not exceed manufacturer's specifications.

- C10. *Onshore Log Storage:*** Where feasible, preference must be given to onshore storage and barging of logs.

Discussion: 11 AAC 95.150 of the Alaska State Forest Resources and Practices Regulations specifies preference to onshore storage and barging of logs where feasible.

- C11. *Facility Maintenance and Reclamation:*** The permittee shall maintain the structure or work authorized in good condition and in reasonable accordance with the approved plans and drawings. If and when the permittee desires to abandon the authorized activity herein, unless such abandonment is part of the transfer procedure by which the permittee is transferring its interests to a third party, the permittee must restore the area to a satisfactory condition.

Discussion: The authorizations from the Corps of Engineers under Section 10 of the Rivers and Harbors Act and Section 404 of the Clean Water Act include the general conditions (h) requirements to maintain authorized work and (g) upon abandonment restoration of the area to a satisfactory condition. This guideline repeats those general conditions.

Monitoring and Reporting Guidelines

LTF's are monitored to assure permit compliance. Monitoring results are used to assess activities associated with the construction, operation, and maintenance of the facilities, and to ensure that correction action occurs, if appropriate. The level and type of monitoring are dependent on the type of facility.

- M1.** *Monitoring by Permittee:* Monitoring for bark accumulations, oil sheen, and surface runoff associated with the construction, operation and maintenance of facilities, and to ensure that corrective action occurs, if appropriate. The level and type of monitoring is dependent on the type of facility (see use definitions in the Glossary).

Discussion: The regulatory agencies when issuing permits can include conditions to a permit which require monitoring by the permittee. The agencies can assume some or all monitoring responsibilities.

- M2.** *Monitoring Requirements:* Monitoring should be undertaken at all continuous and intermittent use LTF sites, and at those occasional and incidental use LTF's at which total volume of logs transferred is similar to that of intermittent use sites. The level of monitoring and parameters to be monitored should be determined on a site-specific basis. Monitoring at occasional and incidental use facilities may be required on a site specific basis. The need for monitoring of occasional or incidental use sites will be limited. Permittees will be required to submit a monitoring program to the permitting agencies prior to operation of a new continuous or intermittent use LTF. Agency approval of monitoring plans is required. Requirements for monitoring should be responsive to data obtained during prior monitoring activities.

Discussion: Monitoring is required to determine the occurrence and the extent of possible environmental impacts. The nature of monitoring activities shall be site-specific and determined by such factors as volume, site characteristics, life of project, and type of operation, since these factors may determine the extent of environmental impacts. Depending upon monitoring results, permitting agencies have sufficient flexibility to modify monitoring requirements for any LTF at any time during its operation, or after the first three years of operation of a continuous LTF. For example, monitoring requirements for a continuous LTF could be dropped if monitoring data indicates that significant deposits of bark debris are not accumulating. Permitting agencies approval is needed to determine if a monitoring plan will satisfy permit conditions.

- M3.** *Annual Monitoring for Bark Accumulation:* At continuous and intermittent use LTF's, monitoring of bark debris accumulation should occur prior to the operating season as a minimum requirement. Monitoring at intermittent LTF's would occur only during periods when the LTF is active.

Discussion: In order to determine if the bark accumulation conditions and stipulations of the permit are being met, it is necessary to measure bark and debris accumulations.

- M4.** *Elements of Bark Accumulation Monitoring Program:* Elements that should be included in a monitoring program for continuous and intermittent use LTF's, are site-specific and may include but not be limited to:

- a. permanent transects
- b. measurement of areal extent, thickness and percent coverage of bark debris,
- c. measurements required by M4, a and b are from MHW (Mean High Water) to depths of 60 feet MLLW (Mean Lower Low Water).

Discussion: In order to determine changes in site characteristics over time, installation of permanent transects is required. Thickness, area and extent of bark coverage affects benthos. Sixty feet below MLLW was selected because it is a depth at which repeated dives can safely be conducted.

Permanent transects are necessary to enable collection of repetitive data. If little or no change is observed, the permit holder may be relieved of the requirement for collecting information along the transects.

The requirement for dive transects, the number of transects, the method of establishing permanence of the transects will be related to the period of usage, the amount of use intended, the resource values involved, and the expectations of effects as a result of the siting process.

- M5.** *Monitoring for Oil Sheen:* Waters in the vicinity of an LTF shall be monitored during operations for the presence of a visible sheen and recorded when observed.

Discussion: The monitoring is necessary to determine if an LTF is being operated to comply with water quality standards for petroleum hydrocarbons, oils, and grease. Authority for this guideline is provided by State Water Quality Standards (18 AAC 70), Oil Pollution Regulations (18 AAC 75), and Federal Regulations (40 CFR 110).

- M6.** *Monitoring Upland Discharges:* On a case-by-case basis, discharges of rainfall from log sorting and storage yard and discharges from any settling pond used to treat water may require monitoring to ensure compliance with State Water Quality Standards and the Clean Water Act.

Discussion: This monitoring is necessary to determine if measures or structures designed to concentrate and treat runoff are operating effectively.

- M7.** *Reporting Guidelines:* Routine annual reports include the following descriptive information:
- a. Location of the LTF (404/402 permits require latitude and longitude). Forest Service traditionally uses legal descriptions.
 - b. Description of the LTF, including transfer devices and sorting and storage areas.
 - c. Permit holder and/or operator of LTF.
 - d. Starting and ending dates of operating season (from first to last bundle), and number of operating days per season.
 - e. Gross volume in board feet (Scribner Scale) or number of bundles transferred during the operating season
 - f. Monitoring data described in Monitoring Guidelines.

Appendix H
ANILCA 507(b) Report

APPENDIX H

ANILCA 507(b) REPORT

ANILCA 507(b) requires that each revision of the Forest Plan shall contain a report on the status of the cooperative planning of section 507(a)), which contains, but is not limited to, a description of current hatchery and aquaculture projects, an analysis of the success of these projects, and a prioritized list of projects anticipated for the duration of the management plan. The Report shall be submitted to Congress with recommendations for any legislative action which may be deemed necessary to implement proposed hatchery and aquaculture projects.

A draft of the ANILCA 507(b) report, prepared by the Regional Office Wildlife and Fisheries Staff, was published with the Draft Environmental Impact Statement in June, 1990. A final, updated version of this report will be published with the final Revised Forest Plan.

Appendix I
Karst and Caves

APPENDIX I

KARST AND CAVES

Introduction

The management of karst resources and the associated caves is new in southeast Alaska, so this appendix was written to provide more background on these resources. It also contains more specific guidelines for management than are appropriate in the forest-wide standards and guidelines of the forest plan. The appendix contains three parts; Characterization of the Karst Landscape, Karst Resources, and Cave Resources Management.

Characterization of the Karst Landscape, Basis for an Ecologically-Based Management Strategy

Introduction

The Tongass National Forest contains the largest concentration of dissolution caves known in the State of Alaska. The Forest also contains world-class surface or epikarst features particularly in the alpine and sub-alpine zones (Aley et al., 1993). The caves and epikarst features result from chemical weathering of limestone and marble bedrock. The karst and cave features and associated resources are a recently discovered and recognized attribute of the lands within southeastern Alaska and have been found to be of national and international significance for a wide variety of reasons, including their intensity and diversity of development, the biological, mineralogical, cultural, and paleontological components, and recreational values (Aley et al., 1993).

The Federal Cave Resources Protection Act (FCRPA) is the primary U.S. law affecting caves. It requires protection of caves on Federal lands. A cave must possess one or more of the criteria outlined in 36 CFR Part 290.3(c) or (d) and be designated as significant as outlined in 36 CFR Part 290.3(e).

The intent of FCRPA is to protect cave resources not karst resources. However, caves and their associated resources are an integral part of the karst landscape. Therefore, the karst landscapes should be managed as an ecological unit to protect cave resources (Baichtal, 1993e, 1995).

Lands underlain by carbonate rocks in high rainfall zones of southeast Alaska are usually karst landscapes. The karst landscapes result from the chemical weathering of the almost pure calcium carbonates, acidic peatlands adjacent to the karst lands, and highly fractured bedrock.

Karst lands add a vertical, underground dimension to land use planning. Karst landscapes function differently than other ecosystems on the Forest. Subsurface drainage networks generally operate independently of, and with more complexity than, the surface drainage systems above (Aley and Aley, 1993; Huntoon, 1992a). The watershed characteristics of the surface may have little or no relationship to the subsurface karst drainage system. On karst lands, the many solution-widened fissures at the surface become injection points into a more complex subsurface drainage system. These fissures rapidly move water and sediment delivered from surface sources vertically downward into the underground lateral systems. Thus, sediment and water transported from roads and disturbed lands may emerge unexpectedly at one or more distant springs including across surface watershed boundaries.

A large portion of a karst system's vulnerability to management disturbance is the system's openness. The degree to which the surface is connected to the karst system conduits at depth relates directly to the effect of any planned land use. A high density of solution and collapse features indicates the presence of well-developed underground systems. The presence of a single sinkhole demonstrates a direct surface/subsurface connection, even if the sinkhole intermittently retains water.

Sediment transport mechanisms are different between karst and non-karst landforms. A particle of soil in non-karst lands transported by gravity, landslides, and/or surface water flow, sometimes over great distances into a watercourse to become sediment. Atop a karst landform, depending on the openness of the karst system, a soil particle only needs to be transported laterally a few inches or feet before it can be washed vertically through the surface or epikarst into the karst conduits at depth.

Karst Management Goals

This overview is intended to describe to the reader the current understanding of the function and biological significance of the karst landscapes in southeastern Alaska. It is these characteristics

and our current understanding of the karst landscape on which the proposed karst management strategy is based. The proposed karst management strategy is designed to assess a karst resource's vulnerability or sensitivity to a proposed land use. This strategy strives to maintain the natural karst processes and the productivity of the karst landscape while providing for other land uses where appropriate.

The Karst Landscape

In southeastern Alaska the karst landscape can be characterized as an ecological unit found atop carbonate bedrock on which karst features have developed as the result of differential solution by acid groundwaters. These acidic groundwaters are a direct product of abundant precipitation and rapid passage of groundwater through the organic-rich forest soil. Recharge areas may be on carbonate or adjacent non-carbonate substrate. A few of the characteristics of this ecological unit include: mature, well-developed spruce and hemlock forests along valley floors and lower slopes, increased productivity for plant and animal communities, extremely productive aquatic communities, well-developed subsurface drainage, and the underlying unique cave resources. The basic principals of karst development and cave formation documented in Ford and Williams (1994); White (1988); White and White (1989). The rate and processes controlling the aerial extent of karst landscape and cave development along the north pacific coast under the cool, moist, heavily forested conditions are not fully understood. Extensive research is needed to fully understand and describe the characteristics of this ecosystem. The following description of the karst landscape discusses its geologic and hydrologic characteristics, biologic characteristics, and natural history

Geologic and Hydrogeologic Characteristics

Karst landscape development in southeastern Alaska appears to be controlled by the purity of the calcium carbonate bedrock, the structure of the bedrock (i.e., faulting, fractures, and bedding), occurrence of igneous intrusions, tectonism, proximity of the carbonates to peatlands and other forest vegetation, the development of surface or epi-karst, glacial history, precipitation, and temperature.

Karst existed on Prince of Wales Island long before the latest glacial advance. Recent phreatic passages into two pre-Latest Wisconsinan caves (approx. 30,000 ybp) have dissolved through Tertiary paleokarst breccias (Aley et al., 1993). Older passages have been plugged by debris from past glacial episodes. One small cave has yielded a marmot tooth which has been dated to greater than 44,500 years (Baichtal, personal communication). Most caves predate the most recent glaciation based upon the presence of glacial clays, glacial sediments, wood, Pleistocene vertebrate remains, and possibly even ancient ice. Similar features are being found during field reconnaissance on Kuiu and Chichagof Islands and on the islands seaward of Prince of Wales. Such evidence clearly suggests that glaciation modified a pre-existing karst landscape, collapsing some passages and systems, gouging into others, and filling some with sediments. The epikarst, which is exceptionally well developed in higher elevations, has been removed in places at lower elevations by the most recent glaciation. Where low-elevation epikarst is present, primarily on the outer coast of islands seaward of Prince of Wales, vegetation has re-established itself and a forested epikarst developed. Where impermeable compacted glacial till and marine silts are deposited on the karst terrain, and poorly drained lithologies adjacent to karst terrain, peatlands are commonly developed. Many of the glacial deposits overlying karst terrain have filled in and modified collapsed karst features. With the development of the forested epikarst and peatlands, and the entrance of associated acidic waters into underground tributaries, a system of enlarged vadose caves and vertical shafts have developed (Baichtal, 1993a).

The rocks most susceptible to karst development are those which are >70 percent calcium carbonate (CaCO_3). Well developed karst and cave systems require that the bedrock be 90 percent calcium carbonate or better. Chemical analysis of 67 limestone and marble samples collected from the northern half of Prince of Wales and surrounding islands showed the range of calcium carbonate varied from 91.47-99.46 percent. The samples averaged 97.65 percent CaCO_3 (Mass et.al. 1992).

These very pure carbonate rocks have had a long tortured history. They originated as marine reef and lagoonal deposits near the equator during Silurian time, some 438 to 408 million years ago (Soja, 1990). These deposits were rafted atop spreading oceanic plates until they docked on the ancient shores of southeast Alaska. These rocks are part of what is now recognized as the Alexander terrane, one of five sub-continental blocks of rock which have combined to form the Ketchikan Area. The oblique collision of the Alexander terrane with North America resulted in the rocks being compressed from east to west and smeared northward along the coast. The Alexander terrane was spectacularly fractured and then fragmented at all scales as it was rifted apart and smeared northward along the Alaskan coast. This smearing occurred along large, northwest-southeast trending, strike-slip faults. Second order intersecting, north trending strike-slip faults allowed the terranes to break into huge blocks. What makes the picture more interesting is that the granite blocks bounded by the large faults are themselves broken into smaller blocks by smaller faults which mimic their large counterparts. This same fault pattern can be seen from terrane boundaries to the outcrop and hand specimen scale. The fractures serve two very important functions in the karsts associated with the Alexander Terrane. First, the intra-island and mountain-block scale faults commonly define karst system boundaries. Secondly, cave passages, chains of sinkholes, and many of the other karst features are localized along sets of small to intermediate scale faults. Epikarst development is largely a function of these fractures and faults (Aley et al., 1993; Coney et. al, 1980; Brown and Yorath, 1989; Brew et al., 1992a and b; Gehrels and Berg, 1992).

Epikarst is exceptionally well developed throughout the karst areas. The alpine epikarst is characterized by deep shafts, crevasse-like dissolved fissures, eroded dissolution rills of all sizes, and spires and spikes of limestone. In the sub-alpine, the epikarst has virtually the same characteristics found in the bare alpine settings except it is vegetated. Typical thicknesses of the epikarst zone range from more than 100 feet in the alpine zone to less than 5 feet along the coast and lower elevations. The epikarst thickness appears to be more a function of glacial history than altitude. The epikarst is extremely important in moving water, nutrients, organic matter, and soil from the land surface and from the rooting zone into the subsurface where these materials can move laterally to seeps and springs or to vertical collector structures which channel them downward into cave networks (Aley et.al. 1993).

Peatlands form atop poorly drained non-carbonate rocks and impermeable compact glacial tills and marine silts that overlie carbonates. Surface waters originating from these poorly drained areas seldom flow more than a few yards onto carbonate substrate before diving below the ground, down vertical shafts or into cave entrances. The highly acidic waters from the peatlands accelerate cave and karst development. pH levels of waters flowing from these Sphagnum-dominated wetlands can be as low as 2.4 (Aley et al., 1993). Waters flowing from the cave systems that accept these waters commonly show a pH range of 7.5-9.0. The buffering capabilities of the pure carbonates is evident.

Most of the caves studied so far are hydrologically active. Those that carry streams are subject to extreme variations in flows. Rainfall in the areas dominated by karst terrain varies greatly ranging from annual average precipitation of 60 to >250 inches per year. The largest floods occur when heavy rains fall on wet snow packs. These cave systems can best be described as very dynamic. Limited dye tracing work on Prince of Wales Island has demonstrated that karst groundwater systems routinely transport water for several thousands of feet to receiving caves, springs, and surface streams (Aley et

al., 1993). The limited specific conductance information gathered to date from this same area suggests that values from karst systems in southeast Alaska are about half the mean values typically encountered in most other north American karst areas. However, karst areas in southeastern Alaska yield annual runoff which is typically on the order of 8 to 16 times greater than that found in other American karsts. The net effect is that solution of soluble bedrock occurs on the order of at least 4 to 8 times faster in southeastern Alaska (Aley et al., 1993).

Hydrologic models currently used for estimating the cumulative effects of proposed surface management activities are not designed to model the effects of timber harvest on the karst landscapes. Evidence suggests that timber harvest increases available surface waters, thereby increasing sediment and debris transport capabilities and flooding passages which have not flooded for centuries. Observations in some caves suggest that passages which now flood result in fragile ceiling formations becoming tannin-stained and showing signs of dissolution. Many cave entrances are infilled and/or blocked by logging slash, sediment, and debris. Runoff generated from road surfaces commonly is diverted into karst features. It is not known what cumulative effects past timber harvest has had on the epikarst landscape (Baichtal, 1993c).

Biologic Characteristics

Only limited information is available on the importance of the karst landscape to plant and animal life in coastal Alaska. The following characterizes what is known about the vegetation/forest, wildlife, and fisheries components of the karst landscape:

Vegetation/Forest. There is a definite tie between the karst landscape and the productivity of the spruce and hemlock forests found there. The major contributors are believed to be the nutrient rich soils, well developed subsurface drainage, and dissected bedrock surface which allows the tree roots to hold fast and become somewhat more windfirm. The old growth on the karst provides a well structured, multi-layered canopy resulting in important winter habitat. The structure of the forest provides many forbs and shrubs for wildlife. It is possible that the available forage contains, at a minimum, higher calcium levels allowing for better bone, muscle, and antler development. The combination of quality forest structure and abundant nutritional browse could make the karst landscape exceedingly crucial habitat (Gustafson, 1993).

One way of demonstrating the productivity of the karst area is to compare timber volume differences between karst and non-karst areas. Exceptionally dense stands of very large diameter spruce and hemlock at lower elevations are characteristic of many karst landscapes. For example, the Labourchere Bay Final Karst Vulnerability Assessment Report (Labourchere Bay, 1994) on north Prince of Wales Island indicates 74% of volume class 7 occurring on karst. Past timber harvest on the karst landscapes has been disproportionately high most likely due to the high percentage of very large, dense forest stands. For instance, in the Central Prince of Wales FEIS analysis, 66 percent of the commercial forest land on known karst has been harvested while only 33 percent of non-karst areas have been cut (Baichtal, 1993c). It has been estimated that in some areas 70 to 80 percent of the commercial forest land within specific karst blocks on the Ketchikan Area has been harvested (Streveler and Brakel, 1993; Baichtal, 1993d). Recent analysis of the karstlands <1,400 feet in elevation and on slopes < 60% (27 deg.) on the Thorne Bay Ranger District indicates that 50% of those acres have been harvested.

On karst landscapes worldwide, timber harvest has led to serious, often long-term declines in soil depth and fertility, in some cases culminating in permanent deforestation (Harding and Ford, 1993;

Huntoon, 1992 a,b; Kiernan, 1993). Trees growing on karst generally have roots extending down into the dissolved cracks in the bedrock. These roots act to pump water and nutrients back up into the forest canopy. Much of the site productivity is tied up in this nutrient cycle and in the forest canopy. When trees are harvested this nutrient cycle is broken. Soils tend to be thin residual soils on these karst areas. The greater the development of the epikarst, the greater the surface/sub-surface connection. The greater the epikarst development, the easier nutrients and soil can be transported vertically beyond the rooting depth of vegetation and into the conduit systems of the karst drainage. Vertical migration of nutrients and soil becomes possible in areas of heavy rainfall and well developed sub-surface drainage once the forest canopy is removed (Harding and Ford, 1993; Gains, 1993; Lichon, 1993). Karst systems are productive but fragile (Huntoon, 1992 a and b; Streveler and Brakel, 1993).

Field observations and aerial photo interpretations show strong evidence of greatly increased surface runoff on karst areas after harvest. This increases sediment, nutrient, and debris transport capability of these systems. Transport capability increases both vertically and laterally. Current harvesting techniques leave the slash within the unit, which helps to protect the shallow fragile soils from erosion and drying. Timber regeneration information from the Ketchikan Area, taken on low elevation, flat topography, karst areas, indicates few regeneration problems. A considerable percentage of the easily accessible low-level karst areas within the Area have been harvested. Timber harvest is now moving onto steeper, higher elevation karst areas which are characterized by shallower, better drained soils. Observations suggest that with harvest atop these soils, much of the soil may be removed if adequate log suspension is not achieved. Often, only a thin organic mat covers the karst. The exceedingly shallow soils become excessively dry once the protective forest canopy is removed. The high rainfall of the area can rapidly move these fragile soils into the well developed epikarst. Observations suggest that these steeper, higher elevation karst areas show less than desirable regeneration or remain as bare rock slopes within harvested units.

Wildlife. Many wildlife species find the surface karst features and the stable environment and shelter provided within the caves to be valuable habitat (Baichtal, J.F., 1993b). Caves have been used as natal den sites for otters, and as resting and denning sites for deer, bear, wolves, and small furbearers. Deer are known to rest around cave entrances both in summer, when the air coming from the caves is cooler and in winter when the cave entrance environment is warmer than elsewhere.

Cave systems are known to provide critical roosting and hibernating habitat for bats (Parker, D.I., 1993). The stable environment within caves can provide roosting habitat both in summer and winter. Bats select cave sites because they fulfill very specific requirements involving cave structure, air circulation patterns, temperature profiles, humidity, and location relative to feeding sites (Hill and Smith, 1992).

Preliminary surveys in southeast Alaska show some bat usage in many of the caves inventoried. Bats have been found within a few caves once temperatures drop below freezing. Roost sites are beyond where freezing air temperatures penetrate from the cave entrance. Southeast Alaska caves appear to be most important to bats during periods of winter torpor. No use of caves by bats as summer roosts or maternity colonies has been noted yet. Much more work remains before good understanding of year-around importance of caves bats is understood. Three species of bats have been reported from caves in the Ketchikan Area: *Myotis lucifugus*, *M. californicus*, and a possible *Lasionycteris noctivagans*. During the summer of 1993 the first ever specimen of *Myotis volans* has been collected from Prince of Wales Island (D. Parker, 1993). In December 1991, the first ever recorded hibernating bat in Alaska was described and photographed from within El Capitan Cave. The *Myotis californicus* collected in El

Capitan cave in February of 1992 was the first live record of that species in Alaska (Parker and Cook, 1993).

Cave systems provide habitat for many invertebrate organisms. Preliminary studies conducted during July 1992 identified 77 species from collections made within several caves. Taxonomic identification of these species must be done before further biological correlations or associations can be made. One amphipod has been identified as *Cratigonyx obliquus-richmondensis*, the first ever record of this amphipod's occurrence in a cave in all of northwestern North America (Carlson, 1993a). Field work continued during the 1993 and 1994 field seasons, with collections made from a number of caves. A troglodytic *Stygobromus* amphipod was collected on Heceta Island to the west of Prince of Wales Island. This species is morphologically identical with *Stygobromus quatsinensis* from two caves on Vancouver Island, British Columbia, Canada (Holsinger, 1987, 1993). This discovery is possibly a high-latitude world-record for a cave adapted species (Aley et al., 1993). Similar *Stygobromus* species were discovered in caves and karst springs on the western shore of Dall Island during the summer of 1993 (Carlson, 1993b).

Some bird species including dippers, thrushes, and swallows, have been known to use cave entrances for nesting and feeding. Rookeries for seabirds including cormorants and pigeon guillemots, and murres and puffins on Coronation Island have been found in some littoral caves (Baichtal, 1993b).

Fisheries. The karst landscape influences productivity of its aquatic habitats in several aspects. The geochemistry associated with karst development contributes to productivity in aquatic environments through its carbonate buffering capacity and carbon input from dissolved limestone bedrock. This has significant downstream effects on the aquatic food chain and biotic community. Preliminary studies (Swanston, personal communication) suggest that aquatic habitats associated with karst landscapes may be eight to ten times more productive than adjacent non-karst dominated aquatic habitats. The karst dominated aquatic habitats support a higher abundance, distribution, density, and variety of invertebrate species than the non-carbonate based systems, have higher growth rates for smolts and resident fish, reflect less variable water temperatures and flow regimes, and contain unique habitat affecting species distribution, abundance, and adaptations (Wissmar et al., in press; Bryant et al., in press; Swanston, personal communication, 1993). It is believed that karst waters have the following connection to fisheries:

1. The carbonates have important buffering effects. Very acidic waters flow from the peatlands (pH 2.4 to 5.8) into karst systems, emerging at a slightly basic pH of 7.5 to 9.
2. Resident time for groundwater in the karst systems results in cool, even temperature water. Flow rates through caves are relatively consistent. The storage capability of the karst systems results in lower peak flows and higher low flows. This helps to moderate the effects of storm events on resurgence streams. The systems do remain flashy though.
3. The cave systems filter out some debris and sediments, although they do not filter out chemical impurities or microorganisms.
4. Smolts and resident trout use the cave systems for protection from predation, for shade, and for a feeding area since many insects utilize the photic zone of the cave system for breeding and shelter. Adult salmon have been seen spawning through some cave systems, and evidence of salmon spawning in the caves has been found. Salmon are reported to spawn within one river cave system on Chichagof Island.

5. Karst streams have a much greater and more diverse aquatic insect populations, both within the caves and in the streams. There also seems to be greater moss and algae growth within the carbonate dominated systems, most likely reflective of nutrient availability (Swanston, 1993).

Natural History, and Paleontological and Cultural Resources.

The potential cultural and paleontological significance of the caves and karst landscape is high. The Pleistocene paleontology of the area is primarily known from cave and rock shelter deposits, which are often intimately related to archaeological sites. The cool, stable, basic environments in the caves result in exceptionally good preservation of bone and organic materials (Aley et al., 1993). Recent paleontological work in caves on Prince of Wales and surrounding islands, along with botanical surveys of alpine areas and genetic studies on chum salmon populations, argue for a well developed coastal refugium along the western coast of southern southeast Alaska. The evidence sheds new light on problems of glacial chronology, climatic change, biogeography, and archaeology along the western margin of North America (Autrey and Baichtal 1992; Heaton and Grady, 1992; Dixon et al., 1992).

To date, significant archaeological and paleontological materials have been discovered in at least thirty caves and rock shelters on the Ketchikan Area (R. Carlson, 1993). During the summers of 1993 and 1994, at least three new bone deposits were located during inventory of caves.

Recently, four black bears (*Ursus americanus*), one of which dates to approximately 11,565 years before present (B. P.) and thirteen grizzly or brown bears (*Ursus arctos*), now extinct on Prince of Wales Island, ranging in age from 35,363 to 7,205 B.P. have been discovered. A possible black bear tibia has been dated to >39,100 B.P. Natal otter (*Lutra canadensis*) dens dating to 8035 B.P. have also been discovered and described (Baichtal, 1993b). Early humans were exploring some caves during the middle Holocene. Evidence of human habitation, the oldest dating to nearly 4,500 B.P., has been discovered in several caves on Prince of Wales and seaward islands. The remains of red fox (*Vulpes vulpes*), caribou (*Rangifer tarandus*), and marmot (*Marmota* sp.), now extinct on the islands, have been recovered (Heaton 1994, 1995a & b). The marmot was dated to over 44,500 years B.P. Botanical studies on Dall and Prince of Wales islands have described plant populations which suggest ancestry from local remnant populations that escaped glaciation (Hulten, 1968; Muller, 1991). Recent research concerned with chum salmon populations from the Queen Charlotte Islands and southeastern Alaska has shown that the greatest genetic variation exists in the fish along the western coastlines of Queen Charlotte and Prince of Wales Islands (Kondzella, 1993). These significant genetic variations suggest longer habitation of streams in these areas, and therefore the possibility of coastal refugia. The occurrence of the *Stygobromus* species on Heceta, and Dall and Coronation Islands also supports the refugia theory. The apparent lack of troglodytes on Prince of Wales Island appears to be correlated with the glacial history of the region (Aley et al., 1993). This new information, combined with limited data on raised marine beaches in the area, strengthens the argument for a coastal refugium, along which Pleistocene mammals and humans may have migrated.

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Karst Resources

Useful Definitions

Due to the uniqueness of the karst landscapes, definition of several terms is needed for a better understanding of the resource. The following terms are used throughout this appendix:

1. **"Karst"** is a type of topography which develops as the result of the dissolution of soluble rocks, in this case limestones and marbles. Dissolution of the subsurface strata produces a landscape that is characterized by well-developed subsurface drainage, collapse features such as sinkholes, dry valleys, vertical shafts, caves, and fluted rock surfaces (epikarst).
2. **"Karst Landscape"**, in southeastern Alaska, can be characterized as a three-dimensional ecological unit found atop and within carbonate bedrock in which karst has developed and including the recharge areas on adjacent non-carbonate substrate. A few of the characteristics of this ecological unit include: mature, well-developed spruce and hemlock forests along the valley floors and lower slopes, increased productivity for plant and animal communities, extremely productive aquatic communities, well-developed subsurface drainage, and the underlying unique cave resources.
3. **"Karst Resources"** refer to all components of the karst system. These include both the physical and biological components of the karst landscape.
4. **"Epikarst"** is the surface of the karst. It is an intensely dissolved veneer consisting of an intricate network of intersecting dissolution-widened fissures, cavities, and tubes. It is this network of intersecting fissures which collect and transport surface waters and nutrients vertically to the underlying karst conduits.
5. **"Cave"** is legally defined under federal law as: "... any naturally occurring void, cavity, recess, or system of interconnected passages beneath the surface of the earth or within a cliff or ledge and which is large enough to permit a[n] person to enter, whether the entrance is excavated or naturally formed. Such a term shall include any natural pit, sinkhole, or other opening which is an extension of a cave entrance or which is an integral part of the cave (36 CFR 261.2)".

Speleologists use "cave" to refer to all parts, regardless of size, of an underground system that links openings and chambers and that may connect the system to the surface. The most common type of cave is formed in carbonates by dissolution. Included in the term "caves" are tree molds and lava tubes associated with lava flows, erosional caves, boulder caves, glacier caves, and littoral caves, as well as those formed by dissolution of bedrock.

6. **"Cave Coordinator"**. An individual with responsibility for managing cave resources. The Forest Coordinator, has forest oversight responsibilities, while the District Cave Coordinator has on-the-ground responsibilities for cave resource management.
7. **"Cave Entry Permit"**. A permit issued to allow entry into a closed cave. Usually the permit will allow entry of a maximum of only six persons at one time.

8. **"FCRPA".** Federal Cave Resource Protection Act of 1988. This law establishes a Federal mandate to identify, protect, and manage caves on public lands administered by the departments of Agriculture and Interior. It may be referred to as the "Act".
9. **"Cave Resources"** includes any material or substance occurring in caves including, but not limited to, biological, cultural, mineralogical, paleontological, geological, hydrological, and recreational resources.
10. **"Significant Cave"** means a cave located on Federal lands that has been determined to meet the criteria in 36 CFR 290.3(c) or (d) and has been designated in accordance with 36 CFR 290.3(e).
11. **"Sinkhole" or "Doline"**(used interchangeably) are terms used to describe relatively shallow, bowl- or funnel-shaped depressions ranging in diameter from a few feet to more than 3,000 feet. These depressions are generally formed by dissolution of and subsequent settlement of bedrock to form a depression or collapse feature.
12. **"Speleothem"** means any natural mineral formation or deposit occurring in a cave or lava tube, including but not limited to any stalactite, stalagmite, helictite, cave coral, flowstone, soda straw, drapery, rimstone, or formation of clay, sand, or mud.
13. **"Speleogen"** refers to relief features on the walls, ceiling, and/or floor of any solution cave or lava tube. Speleogens are part of the surrounding bedrock.. They include but are not limited to anastomoses, scallops, meander niches, petromorphs, and rock pendants in solution caves and similar features unique to volcanic caves.
14. **"Vulnerability Mapping" or "Karst Vulnerability"** is a management tool used to assess the susceptibility or sensitivity of the karst resources to any proposed land use. This type of approach is similar to "hazard area mapping" or "risk assessment". The thesis of this approach recognizes that not all karst development and associated resources are equal. Vulnerability mapping utilizes the fact that some parts of a karst landscape are more sensitive than others to planned land uses.

Karst Landscape Assessment

Karstlands impose land management challenges not encountered in non-karst areas because this three dimensional landform functions differently than do other landforms. Evaluate karst resources as to their vulnerability to land uses affecting karst systems. Vulnerability mapping recognizes that some parts of the karst landscape are more sensitive than others to surface activities and groundwater contamination. These differences in vulnerability may be a function of the extent of karst development, the openness of the karst systems, and the sensitivity of other resources that benefit from karst groundwater systems. Assess karst resource vulnerability for both large geographic areas and site-specific projects. Complete vulnerability assessments of large geographic areas for any karst area where activities are planned. Conduct site-specific vulnerability mapping on a project by project basis or as field verification of the larger scale karst vulnerability assessment. Karst lands will be classified as being of low, moderate, and high vulnerability. This is a four-step process:

1. Identify Potential Karst Lands

Identify those lands underlain by carbonate rocks. As a practical matter, all lands underlain by carbonate rocks within the Forest should be considered a karst landscape.

2. Inventory Karst Resources

Prior to the initiation of any land use planning effort, determine the project's proximity to or position on a karst landscape. If it is determined that karst occurs in the project area, a require complete inventory. Assess the degree of karst development. If karst is present, as a minimum the following information will be recorded:

- a) The degree to which karst has developed including the degree of epikarst development, the presence of caves, the presence of insurgences and resurgences, sinkholes, collapse channels, and other karst features.
- b) When caves are identified, they will be surveyed and inventoried in accordance with cave management guidelines. To maintain continuity of inventory reports and cave maps, specifications will be addressed prior to commencement of inventory work. During inventory work caving ethics and protection of cave resources will be stressed.
- c) The relative position of karst features both within and adjacent to the planned activity.
- d) The slope of the land and the depth and nature of soil atop the karst.
- e) The presence of any Class I or Class II streams being significantly contributed to from the karst hydrologic systems. It is only intended that streams which have had sufficient residence time or contact with the carbonate bedrock which show appreciable geochemically changed be considered. Temperatures < 5 deg. C., pH ranging from 7.5 - 9.0, and specific conductance > 120 would be an indication of the highest value karst waters. It should be recognized that some normally dry drainage channels in a karst landscape will periodically carry large flows when the capacity of underlying conduits is exceeded during high flow events.
- f) Sensitive habitats and features that might be adversely affected by land use changes in the area being investigated. These habitats and features must specifically include, among other things, streams important to fisheries and streams or springs used as domestic water supplies, habitats which support cave adapted organisms, and critical bat winter habitat and/or roosts. When considering karst streams and springs, the inventory work must recognize that many sensitive habitats and features are likely to be located appreciable distances away from points where waters enter the karst groundwater system.
- g) The results of the survey shall be documented and digitized onto the Region's GIS data base. The area's geology, location of karst features and caves, and the vulnerability of specific karst areas shall be recorded.

3. Delineate Karst Hydrologic System and Catchment Area

Define, to the extent practical, the karst hydrologic system and the recharge area watershed or catchment area for each karst system. The character of the catchment area, i.e., the area, slope gradient, vegetation, water quality, soils, etc. controls the nature of the receiving karst system and defines the volume of runoff available for infiltration into the system. Recharge area delineation is a crucial component of vulnerability mapping; you must know where the water comes from and resurges to credibly assess and characterize possible impacts. At a minimum, the following information will be recorded:

- a) During the inventory phase, record the location of all resurgences, insurgences, losing streams, sinkholes or other features appropriate for injection of tracing dyes. Estimate water volume entering or discharging from the groundwater system at the time of the visit. Describe prevailing weather conditions at the time of the visit.
- b) Perform a sufficient number of dye traces to assess the karst hydrologic system or systems within a study area. Conditions on the Forest are such that flow direction of tracer dyes cannot always be predicted. This unpredictability reinforces the need for a thorough area search for all resurgences and accurate estimates of stream and spring flows.
- c) Record the results of the dye traces, indicating the relative position of the dye injection point and the position of the resurgence or spring where the dye was recovered. Record the tracer dye's travel time and concentration if known. Record resurgences and streams that were sampled but no dye was recovered. Document and digitize results onto the Regional GIS data base.

4. Assess Vulnerability of Karst Terrain to Management Activity

The final step is to delineate the land under investigation into various vulnerability categories. An area's vulnerability rating must be sensitive to potential surface management practices based on the extent to which epikarst has developed and the openness of the karst system. The vulnerability categories and their criteria are as follows:

a) Low Vulnerability Karstlands

1. Classification Criteria. Low vulnerability karstlands are those areas where resource damage threats associated with land management activities in the areas are not likely to be appreciably greater than those posed by similar activities on non-carbonate substrate. Some characteristics of these lands are:

- i. Karst development is limited or has been modified by glaciation;
- ii. Epikarst development is relatively shallow;
- iii. Solutional karst features are present but not numerous;
- iv. Soils are primarily mineral, soil depth is shallow to deep, the soils are moderately well to well drained, parent material is the carbonate substrate, glacial till, or volcanic.
- v. No caves are present;
- vi. There are no slopes > 72 percent;
- vii. The karst hydrologic system does not contribute waters to Class I or Class II streams and/or domestic watersheds;
- viii. They lie within a watershed which contributes surface waters to a karst area determined to have a low vulnerability.

2. Karst Management Objectives and Appropriate Land Uses

These are areas of low or negligible vulnerability from a karst management perspective. No special provision for the protection of karst values is considered necessary. Timber

harvest and related activities could be conducted in such areas in a similar manner to those normally employed on lands underlain by non-carbonate bedrock. Partial suspension yarding may be required. No quarry shall be developed atop karst without adequate site survey and design. Quarries should be properly closed after abandonment. Recreational development would be appropriate with consideration of karst resource values.

It is possible that within and adjacent to areas found to be of low vulnerability, will be found karst areas with high vulnerability. Along such boundaries or margins, guidelines outlined under "Moderate Vulnerability Karstlands" shall apply.

b) Moderate Vulnerability Karstlands

1. Classification Criteria. Moderate vulnerability karstlands are those areas where resource damage threats associated with land management activities in the areas are appreciably greater than those posed by similar activities on low vulnerability karst lands. Some characteristics of these lands are:

- i. Karst systems are moderately well developed;
- ii. Epikarst is up to eight feet in depth;
- iii. Solutional karst features are present but not numerous;
- iv. Soils are a mosaic of both mineral and organic. Mineral soils vary from shallow to deep, are well drained, and parent material is the carbonate substrate. Organic soils are shallow and well drained. If the soil was displaced from the bedrock, it would be retained in the adjacent solutional channels of the epikarst. The percentage of bare rock would increase but the soils would not be transported beyond the rooting depth of young conifers;
- v. No caves are present;
- vi. There are no slopes > 72 percent;
- vii. The karst hydrologic system does not contribute waters to Class I or Class II streams and/or domestic watersheds;
- viii. They lie within a watershed which contributes surface waters to a karst area determined to have a low vulnerability.

2. Karst Management Objectives and Appropriate Land Uses

To provide for other land uses taking into account karst management objectives. Timber harvest and related activities could be conducted in such areas under more restrictive guidelines than normally employed on lands underlain by non-carbonate bedrock. To protect the fragile soils found here, as a minimum, the yarding system selected may be required to achieve partial suspension. Longer timber harvest rotational periods may be appropriate. Reduced timber harvest unit size and a greater dispersal of harvest units may be required. Existing roads and quarries will be utilized in preference to the construction of new ones. Roads shall avoid sinkholes and other collapse features

and losing streams. At no time shall roads divert water to nor from karst features. Measures shall be taken to reduce erosion and sediment transport from the road surface and cutslopes. Sediment traps, cut and fill slope revegetation, and road closure and revegetation may be appropriate. Because karst development is more intense here, additional design criteria may be required. Such criteria may relate to road construction methods, blasting, culvert placement and density, and sediment retention and erosion prevention. No quarry shall be developed atop karst without adequate site survey and design. Quarries should be properly closed after abandonment. Recreational development would be appropriate with consideration of the karst resource values listed above, particularly with respect to reducing disturbance of sensitive soils and use of construction methods that avoid erosion and diversion of natural and road drainage waters into karst features.

It is probable that within and adjacent to areas found to be of moderate vulnerability, will be karst areas with high vulnerability. Along such boundaries or margins the following guidelines shall apply:

- i. No surface disturbing activity such as timber harvest, road construction, and/or quarry development shall occur within a minimum of 100 feet of the edge of a sinkhole, collapse channel, doline field, losing stream, or other collapse karst feature if groundwater dye tracing studies have indicated that such features contribute to Class I or Class II streams or a domestic water supply. If groundwater dye tracing studies have not been completed and it is suspected that the groundwaters contribute to a "significant" cave, Class I or II stream, or domestic water supply, no ground disturbing activity shall occur within 100 feet of *any* above mentioned karst features;
- ii. No surface disturbing activity such as timber harvest, road construction, and/or quarry development will occur on lands that overlie a known "significant" cave or contribute waters to any known "significant" cave. Neither should these activities occur on lands that are close enough to the entrance of a significant cave to be capable of altering the microclimate of the cave's entrance and/or cave features within;
- iii. When designing buffers to protect karst systems and their features, the buffer should be designed to be wind-firm. There is no credible standard buffer distance that will provide the assurance required to protect the systems from blowdown of the forest within a given buffer. Each buffer must be carefully designed considering wind direction patterns, blowdown history, previous adjacent harvest, topography, and stand windfirmness. Delineated lands surrounding such features and systems must be of sufficient size to insure protection even if blowdown occurs.

c) High Vulnerability Karstlands

1. Classification Criteria. High vulnerability karstlands are those areas where resource damage threats associated with land management activities in the areas are appreciably greater than those posed by similar activities on low or moderate vulnerability karst lands. These are the areas contributing to or overlying significant caves and areas containing a high density of karst features. Some characteristics of these lands are:

- i. Karst systems are extremely well developed;
- ii. Epikarst is greater than eight feet in depth and may be open to the lateral karst conduits at depth;
- iii. Solutional karst features are numerous;
- iv. Soils are primarily shallow, well drained organics. Exposed bedrock areas are common to extensive. If the soil is displaced from the bedrock, it may be retained in the adjacent solutional channels of the epikarst, however the percentage of bare rock would greatly increase and the soils most likely would be transported beyond the rooting depth of young conifers. If the karst systems are extremely well developed and open, soils may not be retained within the epikarst channels. They would be rapidly transported to the lateral karst conduits at depth;
- v. Caves may be present;
- vi. Karst areas may contain slopes > 72 percent;
- vii. The karst hydrologic system may contribute waters to Class I or Class II streams and/or domestic watersheds;
- viii. They lie within a watershed which contributes surface waters to a karst area determined to have a high vulnerability.

2. Karst Management Objectives and Appropriate Land Uses

These areas shall be managed to insure conservation of karst values through the implementation of a high level of protection. Timber management and related activities should be excluded from these lands. Small expanses of these areas may be crossed by roads to access areas where harvest is appropriate, i.e. low or moderate vulnerability karst lands and non-carbonate areas. This would only be allowed if no other route or option was available and karst resource values would not be compromised. No quarry development would be allowed on these lands. Limited recreational development may be appropriate. Roads across such sensitive terrain except as described above, are inappropriate. Recreational facilities and trails would have to consider karst resource values and objectives discussed above, particularly with respect to reducing disturbance of significant epikarst features and sensitive soils and use of construction methods that avoid erosion and diversion of natural drainage waters into karst features.

Karst lands found to be of unquestionably high vulnerability shall be identified and removed from the commercial forest lands suitable land base.

Catchment Area Management

The catchment areas for karst systems, comprised of carbonate or non-carbonate substrate, are an integral portion of those system. These catchment areas must be effectively managed to protect the resource values of the karst systems into which they flow. The higher the resource values found within a particular karst block, the higher the degree of protection which is needed within a contributing catchment area. As a minimum, such things as potential for increased runoff and increased stream velocities, increased sediment transport capability, mass wasting potential of the soils within the watershed, and increased wind-throw potential should be considered when developing management strategies for these catchment areas. During large scale planning efforts, the vulnerability of the karst system's catchment areas should be equal to the highest down-gradient karst vulnerability values. During the site-specific project planning, management strategies developed for the catchment areas should insure protection of the down-gradient karst resource values.

Monitoring

Develop and maintain a monitoring strategy to determine the effects of land uses, specifically timber harvest and road construction on the karst landscape. As a minimum, karst hydrology, soil loss, forest regeneration, sedimentation, and debris transport shall be monitored.

Mineral Development

The chemically pure carbonates of southeastern Alaska have long been considered for their commodity values. Values are not determined solely on chemical purity but on brightness as well. The more pure the carbonate bedrock, the more intense karst development will be. It is not the intent of these standards and guidelines to restrict any lands from mineral development though that may be appropriate if a specific project or area is designated as a "Special Interest Area LUD". The impacts of any proposed mineral development within the karst landscape can be analyzed through the environmental analysis which is triggered once a Plan of Operation is received.

CAVE RESOURCE MANAGEMENT

1. Cave Inventories and Designation

The inventory of caves is an ongoing process. The Forest will continue to aggressively pursue collection of inventory data. This will be accomplished mostly through partnerships with caving organizations. Collection of this information will be the responsibility of the Unit cave management coordinator.

- a) Each of these caves will be assigned a unique cave inventory number, and, except in wilderness, a brass cave inventory cap will be placed at each entrance. The brass caps provide a permanent identification marker at each cave entrance and allow a distinction to be made between known and newly discovered caves.
- b) Cave numbers will be assigned to each cave entrance. Caves with multiple entrances will bear the same number at each entrance, followed by alpha characters (A, B, C, etc.) to differentiate between individual entrances. Cave numbers are assigned by Region, Forest, and Unit, followed by consecutive numbers for each cave on the Unit. For example, the number assigned to the main entrance of El Capitan Cave (10-5-4-70-A). The key to this numerical designation is as follows:
 - 10= Region 10
 - 5= Tongass National Forest, Ketchikan Area (Forest 5)
 - 4= Thorne Bay Ranger District (Unit 4)
 - 70= Cave No. 70 on the Unit
 - A= First Entrance of El Capitan Cave.
- c) Except in wilderness, brass cave inventory caps, stamped with the cave number, will be grouted into a drill hole at each entrance. The caps will be placed in obvious, easily found locations. Care will be taken when placing the markers to avoid locations which would unnecessarily impact the aesthetics of the cave or cause resource damage.

2. Records

On each management unit with caves, a file of permanent data will be maintained for each cave. This file will remain locked, with access provided on a need-to-know basis only. At a minimum, the following information will be collected and maintained for each cave:

- | | |
|----------------------------------|---------------------------------|
| 1. Cave Name | 10. Range |
| 2. Cave Number (entrance number) | 11. Section |
| 3. Determination of Significance | 12. Quadrant |
| 4. Date Marker Cap Set | 13. Cave Classification |
| 5. Cave Length | 14. Special Management Concerns |
| 6. Latitude | 15. Alternate Cave Names |
| 7. Longitude | 16. Descriptive Notes |
| 8. Elevation | 17. Cave Map |
| 9. Township | |

In addition to the above information, photographs, scientific reports, copies of newspaper clippings, or other printed materials relating to a specific cave should be included in the file.

3. Naming of Caves

If a new name is to be applied to a cave there are two rules which should be followed:

- a) Never name a cave after a living person;
- b) Never name a cave after a geographic feature which discloses the cave's location.

4. Cave Locations

Information concerning the location of caves will be kept confidential in accordance with provisions of the FCRPA.

- a) Only the location of caves classified as "Directed Access" will be made available to the public;
- b) Cave locations recorded in GIS will be placed on a separate, secure layer, and all inventory records will be maintained in a locked file. Access to these records will be permitted on a need-to-know basis only. Generalized information which does not lead to the disclosure of cave locations may be made available if it is determined that such disclosure would not constitute a threat of theft, damage, or harm to cave resources, and is consistent with the purposes of the FCRPA, the implementation regulations, Forest Plan Standards and Guidelines, and FSM 2356.

5. Partnerships

Use partnership agreements or volunteers to assist with cave management. The use of volunteers is authorized by the Volunteers in the National Forest Act (16 USC 558), the Federal Cave Resources Protection Act of 1988, and a National Memorandum of Understanding between the USDA Forest Service and the National Speleological Society, dated September 30, 1988. Actively seek and participate in interagency agreements and partnerships with both Federal, State and private partners, to meet the goals of this management plan. Emphasize opportunities for cooperative bat management.

6. Suggested Monitoring/Management for Recreational Use

Recreational use of only a few caves in the Tongass National Forest is currently taking place. However, with increased interest in the resource and increasing population, access, and tourism, cave use and visitation is expected to increase. Recreational use monitoring of select undeveloped caves has been done elsewhere through the use of cave registers or electronic counters. It is suggested that these proven techniques be used on the Tongass. Seek assistance from the National Speleological Society in monitoring projects. Include the following monitoring and management at a minimum:

- a) Photo monitoring of points established in sensitive caves to assess visitor impacts. Revisit these photo points periodically and take new photos from the same spots. Compare these photos to determine impacts to the cave and as a help in establishing appropriate use levels;
- b) Development of a brochure describing the sensitivity of cave resources to disturbance, cave access policy on the Forest, and precautions explorers should follow to prevent damage to caves. Caving safety and equipment will also be included. Develop the brochure in partnership with caving organizations.

7. Protection of Cave Entrances

Cave entrances are both sensitive and critical to cave ecosystems. Entrances are a focus of biological activity which contributes nutrients to deep cave organisms. The moderating affect of warm moist cave air creates micro-environments in cave entrances which promote growth and occupation by unusual plants and animals. Disruption of this ecosystem by development, or heavy recreational use should be avoided. Archaeological and paleontological sites are frequently found in cave entrances, particularly beneath vertical drops. Protection of cave entrances should include the following considerations:

- a) Recreational use, or development of cave entrances may be permitted only when it has been determined to be consistent with provisions of the Federal Cave Resources Protection Act;
- b) When heavy use is anticipated, narrow pathways should be provided to minimize disturbance;
- c) The building of fires in caves and cave entrances will be prohibited;
- d) No camping in caves and cave entrances unless it is deemed necessary for may be permitted when it has been determined to be consistent with protection of cave resources.

8. Digging in Caves

- a) All digging, moving of rocks, or enlargement of passages to allow exploration requires a permit. Digging should generally be minimal, and waste products disposed of, or graded in a manner specified in the digging permit. Excavations made as a part of scientific investigations will be backfilled and graded to natural contours.
- b) Issue permits only when it has been determined that no damage to cave resources will take place;
- c) If formerly closed passages are opened, take measures to maintain former atmospheric conditions through use of airlocks or gates.

9. Permanent Anchors

In vertical caves, use natural anchors for rigging ropes when possible. Chocks, cams, and slings are acceptable low impact anchoring devices. The use of permanent anchors, such as expansion bolts, will be set only when approved in advance by the Forest Service and generally not in wilderness. Acceptable reasons to set bolts would be lack of safe natural anchors, directing ropes to avoid loose rocks, reduce rope abrasion, or to protect fragile cave resources.

10. Climbing

Climbing in caves may be allowed when needed to overcome vertical obstacles during exploration. Sport climbing may be allowed in the vicinity of cave entrances when no risk of damage to cave resources is present. Climbing must not mar, deface, or leave visible signs of activity having taken place. The use of chalk to dry climbers hands, and which leave marks on handholds, is considered a defacement and will not be permitted.

11. Closed Caves/Cave Entry Permits

- a) All sensitive caves will be closed by order of the Forest Supervisor and entry allowed by permit only. A sign at the entrance of each sensitive cave will designate it as closed to

visitation without a permit, and indicate the address and phone number where permit information may be obtained.

- b) Establish a carrying capacity for exploration purposes for each sensitive cave and determine allowable uses. Issue permit only for uses compatible with long-term preservation and protection of cave resources. Except in unusual circumstances, the maximum party size permitted in any sensitive cave will be six persons. Establish a maximum number of visits per month and per year. Each unit will be responsible for issuance of permits for caves under their jurisdiction.
- c) Use gates to control access to certain caves. When it is determined a gate is required, design and install the gate to allow free passage of bats, small animals, air and water into or out of the cave. Gates will be constructed using the best designs available and located for maximum wildlife acceptance.
- d) Certain caves on the Tongass National Forest provide critical winter habitat for bats. Bats have a low tolerance to disturbance. Recreational use during hibernation can result in death when disturbance results in starvation from utilization of limited fat reserves. Use seasonal closure of caves for protection of hibernating bats or bat maternity sites as appropriate. Winter closure will generally be between November 1, through April 15. Bat caves may be open to visitor use when bats are not present.
- e) Blasting and other surface management activities can result in significant disturbance of roosting and hibernating bats within the cave systems. Some birds and large mammals and furbearers utilize the caves for nesting, denning and hibernation. Seasonal closures prohibiting construction activities in some areas may be required to insure protection of these populations.

12. Cave Evaluation

All caves on the Tongass National Forest will be evaluated using the following rating system. The system assigns values to various cave resources. The assigned values will be used in determining cave classification and in making determinations of cave significance as provided by the implementation regulations for the Federal Cave Resources Act of 1988. If a cave has a value of "1" or greater, in one or more categories, the cave will be considered for designation as significant using the criteria in 36 CFR 290.3(c) and (d) (FCRPA Implementation Regulations, 1994).

a) Biological Resources

Value	Explanation of Value
0	Biological components lacking.
1	Biological components exist but of low apparent significance.
2	Biological components present and numerous, sensitivity low.
3	Biological components present, numerous and of moderate sensitivity.
4	Biological components numerous and sensitive to disturbance.
5	Biological components very numerous and highly sensitive to disturbance. Habitat is critical to species survival. The cave contains unique species, or ones found on State or Federal sensitive, threatened, or endangered species lists.

b) Hydrological Resources

Value	Explanation of Value
0	Hydrologic components lacking.
1	Hydrologic components present but of low importance.
2	Hydrologic components present but of low sensitivity.
3	Hydrologic components present and of moderate sensitivity.
4	Hydrologic components important and very sensitive.
5	Hydrologic components complex and highly sensitive.

c) Heritage (cultural/historic) Resources

Value	Explanation of Value
0	Heritage resources lacking.
1	Potential for heritage resources low.
2	Potential for heritage resources moderate.
3	Heritage resources present or implicated by historic records. Site may be eligible for the National Register of Historic Places.
4	Heritage resources present and sensitive to disturbance. Site eligible for the National Register of Historic Places.
5	Heritage resources present and highly sensitive to disturbance. Site eligible for the National Register of Historic Places.

d) Recreational Resources

Value	Explanation of Value
0	Cave lacks recreational value.
1	Recreational value low. Little or no scenic appeal.
2	Recreational value low but receiving some use. Scenic values low.
3	Recreational values, scenic values and use moderate.
4	Recreational values, scenic values and use high.
5	Recreational values, scenic values and use very high. A major cave of regional or National significance.

e) Geologic/Mineralogic/Paleontologic Resources

Value	Explanation of Value
0	Features of significance lacking.
1	Some interesting features present.
2	Features present and resistant to disturbance.
3	Features present and of moderate sensitivity to disturbance.
4	Features numerous and of high value. Features sensitive to disturbance.
5	Features rare, valuable, numerous and/or of great sensitivity to disturbance.

f) Educational or Scientific Resources

Value	Explanation of Value
0	Caves lacking educational or scientific value.
1	Caves with low educational or scientific value.
2	Caves with features which can be used for educational or scientific study but are otherwise considered common to the area.
3	Caves which provide opportunity for educational or scientific study.
4	Caves providing unusual opportunity for educational or scientific use.
5	Caves with unique opportunity for interpretation and public education or scientific study.

13. Cave Classification

Place caves into one of the following classes based on management objectives consistent with identified cave resource values. As new caves are discovered, temporarily manage them as Class 1 until an analysis of resource values is completed.

a) Class 1. Sensitive Caves.--Caves considered unsuitable for exploration by the general public either because of their pristine condition, unique resources or extreme safety hazards. They may contain resources that would be impacted by low levels of visitation. These caves are not shown on maps or discussed in publications (such as guides, brochures or magazines) intended for general public use. Develop specific management guidelines for each sensitive cave for the purpose of protecting and maintaining their resources. Close these caves by order of the Forest Supervisor, and allow entry by permit only.

b) Class 2. Directed Access Caves.--Caves with directed public access and developed for public use. These caves are shown on maps or have signs directing visitor access; frequently have guided tours and artificial lighting. Regardless of the level of development, encourage public visitation. The caves may have sensitive resources that are protected.

c) Class 3. Undeveloped Caves.--Caves that are undeveloped but are suitable for exploration by persons who are properly prepared. In general, these caves contain resources that resist degradation by moderate levels of recreational use. Public attention will not be directed toward these caves. They will not be shown on maps nor discussed in brochures or publications intended for general public distribution.

14. Staffing Requirements

It is recommended that :

- a) A position of Forest Cave Coordinator be designated. This position would have responsibility for coordinating all cave related activities on the Forest. This position would further be responsible for maintaining inventory records of all caves on the Forest, coordinate determinations of cave significance, provide expertise to field units concerning cave management, and assure guide lines, policies, plans, and laws pertaining to caves and cave resources are followed. The position would coordinate funding requests from field units, and transmit those requests to appropriate authorities. This position may be shared

with the Regional Office to provide cave management direction and assistance to other national forests;

- b) On field units with caves, a District Cave Coordinator should be identified. This position will assume field level responsibility for inventory, evaluation, and management of caves. District Cave Coordinators will manage local activities related to caves, including issuance of cave access permits, research permits, cave gating, record keeping, and monitoring of impacts caused by use or management activities.

15. Prohibitions

The following acts will be prohibited by order of the Forest Supervisor pursuant to 36 CFR Sec. 261, 262, Subpart B:

- a) In bat caves, or caves with sensitive species (261.53) , it is prohibited to go into or be upon any area which is closed for the protection of: threatened, endangered, rare, unique, or vanishing species of plants, animals, birds or fish;
- b) Applicable to all caves, except for purposes of research and exploration, it is prohibited to:
 - i. [261.52(a)] build, maintain, attend, or use a campfire or stove fire; fires may be allowed in regard to traditional native ceremonies in compliance with the American Indian Religious Freedom Act and the Native American Graves Protection and Repatriation Act, their amendments and implementing regulations.
 - ii. [261.52(c)] smoke;
 - iii. [261.58(e)] camp;
 - iv. [262.52(f)] possess, discharge, or use any kind of fireworks or other pyrotechnic device;
 - v. [261.58(m)] discharge a firearm, air rifle or gas gun; or
 - vi. [261.58(s)] possess a dog or cat.

16. Collection or Removal of Cave Resources

The Federal Cave Resources Protection Act authorizes the Secretary of Agriculture to issue permits for the collection and removal of cave resources under such terms and conditions as the Secretary may impose, including the posting of bonds to ensure compliance with the provisions of any permit. Specific guidelines are found for the issuance of such permits in the Act.

The Act further states "any person who, without prior authorization from the Secretary, knowingly destroys, disturbs, defaces, mars, alters, removes or harms any significant cave or alters the free movement of any animal or plant life into or out of any significant cave located on Federal Lands, or enters any significant cave located on Federal lands with the intention of committing any act described in this paragraph shall be punished..." The act goes on to describe specific punishment and sets civil penalties.

- a) The Forest will comply with the Act by requiring permits for any collection of cave resources or when studies are proposed that could adversely impact cave resources. (See definition of Cave Resources in the FCRPA.)
- b) Issue permits only when it has been determined that collections or studies will not create long-term impacts to cave resources.
- c) Issue all permits with the provision that a copy of the study results is provided to the Forest Service.

- d) All permits shall require assurance from the holder that the locations of significant caves will remain confidential.
- e) Issue permits only when it has been determined that the proposed activities are consistent with the FCRPA, FSM direction, and are within Forest Plan Standards and Guidelines.
- f) Issue collection permits for scientific research and educational purposes only.
- g) No permits will be issued for removal of cave resources intended for personal collections or for purposes unlikely to generate new contributions of scientific knowledge or understanding of National Forest caves.

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